PIONEER®

Service Manual

The photo shows the model UKE-7100.

ORDER NO.
CRT-301-0

CASSETTE CAR STEREO WITH AM/FM ELECTRONIC TUNER

UKE-7100 US, CA

CASSETTE CAR STEREO WITH AM/FM ELECTRONIC TUNER

UKE-3100 US, CA

NOTE:
For cassette mechanism description, refer to the following models.

UKE-7100/US, CA → UKP-7200/US, CA (CRT-267-0)
UKE-3100/US, CA → UKP-5200/US, CA (CRT-267-0)

SPECIFICATIONS

General

Power source . . . . . DC14.4V (10.8~15.6V allowable)
Grounding system. . . . . .Negative type
Max. current consumption. 1.3A
Dimensions (chassis) . . . . . .180(W)x50(H)x120(D)mm
[7-1/8(W)x2(H)x4-3/4(D) in.]
(nose) . . . . . 96(W)x42(H)x30(D)mm
[3-3/4(W)x1-5/8(H)x1-1/4(D) in.]
Shaft interval . . . . . 130 or 147mm (5-1/8 or 5-3/4 in.)
Weight . . . . . 1.6kg (3.5 lbs.) (UKE-7100)
1.5kg (3.3 lbs.) (UKE-3100)

Amplifier

Continuous power output is 3.2W per channel min. into 4 ohms, both channels driven 50 to 15,000Hz with no more than 5% THD.
Maximum power output . . . . . 6.5W + 6.5W
Load impedance. . . . . .4Ω (2~8Ω allowable)
Tone controls (bass) . . . . . ±10dB (100Hz) (UKE-7100)
(treble) . . . . . ±10dB (10kHz) (UKE-7100)
Loudness contour. . . . . +12dB (100Hz), +4dB (10kHz)
(volume: −30dB)

Tape Player

Tape . . . . . Compact cassette tape (C-30~C-90)
Tape speed. . . . . 4.76cm/sec. (+0.14cm/sec. −0.05cm/sec.)
Fast forward/rewind time . . . . . .Approx. 100sec. for C-60
Wow & flutter. . . . . 0.13% (WRMS) (UKE-7100)
0.15% (WRMS) (UKE-3100)
Frequency response. . . . . Metal: 50~16,000Hz (±3dB)
(UKE-7100) Normal: 50~12,000Hz (±3dB)
Frequency response. . . . . 50~12,000Hz (±3dB)
(UKE-3100)
Stereo separation 45dB
Signal-to-noise ratio. . . . . Dolby NR IN: 60dB (IHF-A network)
(UKE-7100) Dolby NR OUT: 52dB (IHF-A network)
Signal-to-noise ratio. . . . . .52dB (IHF-A network)
(UKE-3100)

FM Tuner

Frequency range . . . . . 87.9~107.9MHz
Usable sensitivity . . . . . 16.8dBf (1.9μV/75Ω, mono)
50dB quieting sensitivity. . . . . 19.2dBf (2.5μV/75Ω, mono)
Signal-to-noise ratio. . . . . 70dB (IHF-A network) (UKE-7100)
65dB (IHF-A network) (UKE-3100)
Alternate channel selectivity. . . . . .70dB (±400kHz) (UKE-7100)
50dB (±400kHz) (UKE-3100)
Distortion . . . . . .0.5% (at 65dBf, 1kHz, stereo)
Frequency response. . . . . 50~12,000Hz (±3dB)
Stereo separation . . . . . .40dB (at 65dBf, 1kHz)

AM Tuner

Frequency range . . . . . 530~1,620kHz
Usable sensitivity 30μV (29.5dB) (S/N:20dB)
Selectivity . . . . . 50dB (±10kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

- 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories Licensing corporation.
- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS OF AMERICA 1925E. Dominguez St. Long Beach, Calif. 90810
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

CONTENTS

1. PARTS LOCATION. 1
2. CIRCUIT DESCRIPTION 2
3. ADJUSTMENT
   - 3.1 Dolby NR Level Adjustment (UKE-7100) . . . 12
   - 3.2 Dolby NR Performance Confirmation (UKE-7100) 12
   - 3.3 Crystal Oscillator Frequency Adjustment (UKE-7100) 13
   - 3.4 FM IF Adjustment (UKE-7100) 13
   - 3.5 FM Tracking Adjustment (UKE-7100). 14
   - 3.6 FM MPX and ARC Adjustment (UKE-7100) . . 14
   - 3.7 FM Scan Sensitivity Adjustment (UKE-7100). . 15
   - 3.8 AM IF Adjustment (UKE-7100). 15
   - 3.9 AM Tracking Adjustment (UKE-7100) 16
   - 3.10 AM Scan Sensitivity Confirmation (UKE-7100) 16
   - 3.11 Crystal Oscillator Frequency Confirmation (UKE-3100) 16
   - 3.12 FM IF Adjustment (UKE-3100) 17
   - 3.13 FM Tracking Adjustment (UKE-3100). 18
   - 3.14 FM MPX Adjustment (UKE-3100) 18
   - 3.15 FM Scan Sensitivity Adjustment (UKE-3100). . 18
   - 3.16 AM IF Adjustment (UKE-3100). 19
   - 3.17 AM Tracking Adjustment (UKE-3100) 20
   - 3.18 AM Scan Sensitivity Confirmation (UKE-3100) 20
4. CONNECTION DIAGRAM (UKE-7100) 25
5. SCHEMATIC CIRCUIT DIAGRAM (UKE-7100) . . . 29
6. SCHEMATIC CIRCUIT DIAGRAM (UKE-3100) . . . 33
7. CONNECTION DIAGRAM (UKE-3100) 37
8. CASSETTE MECHANISM EXPLODED VIEW (UKE-7100) 41
9. CASSETTE MECHANISM EXPLODED VIEW (UKE-3100) 44
10. CABINET EXPLODED VIEW 47
11. CHASSIS EXPLODED VIEW 48
12. ELECTRICAL PARTS LIST 51
13. PACKING METHOD 57
14. TROUBLESHOOTING. 59

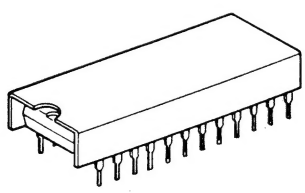
CAUTION

When Handling IC PD7003A (PD7003B)

Please Observe:

IC PD7003A (PD7003B) (IC1 in the control unit) is a C-MOS IC of extremely low power consumption and very high input impedance. Unless handled with special care, it could be damaged by static electricity induction. This IC is supplied with a shorting, cap (of aluminium foil) attached. When soldering, or performing other repair work, always attach this cap as shown below. Remove the cap after the repair has been completed.

Also, this type of IC must not be inserted in a polystyrene package for storage.



1. PARTS LOCATION

NOTE

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ : GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- **UKE-7100**

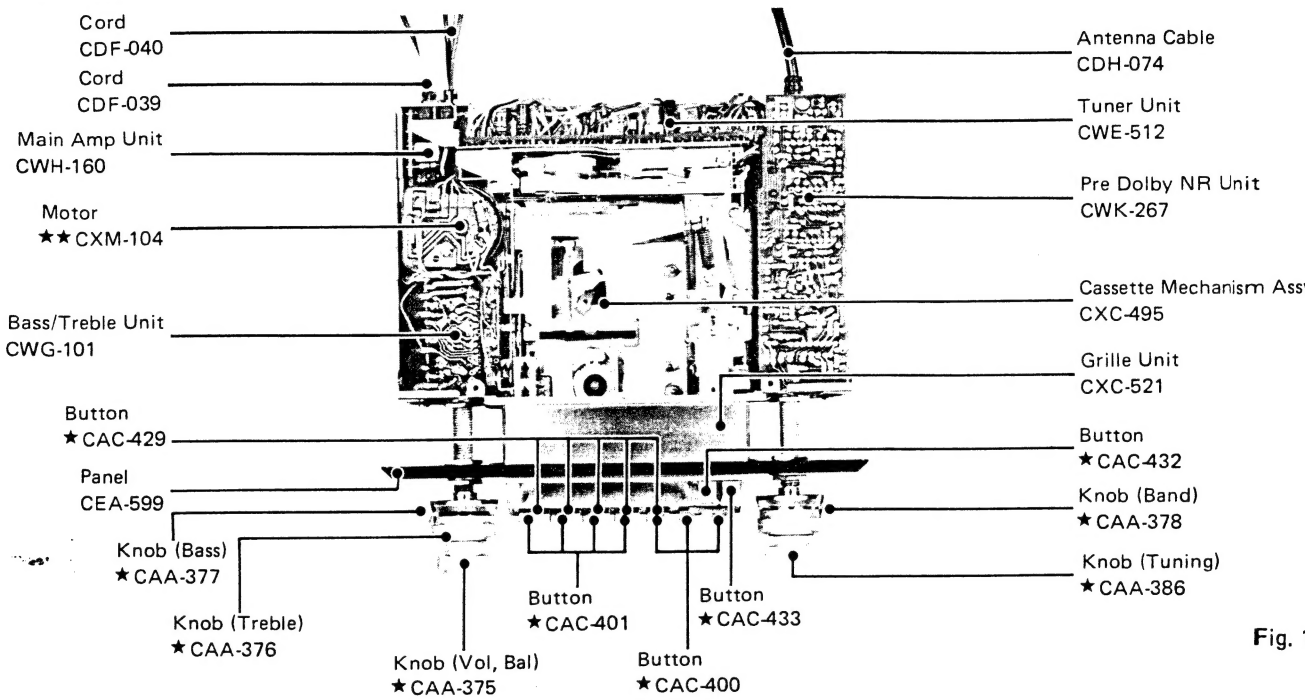


Fig. 1

- **UKE-3100**

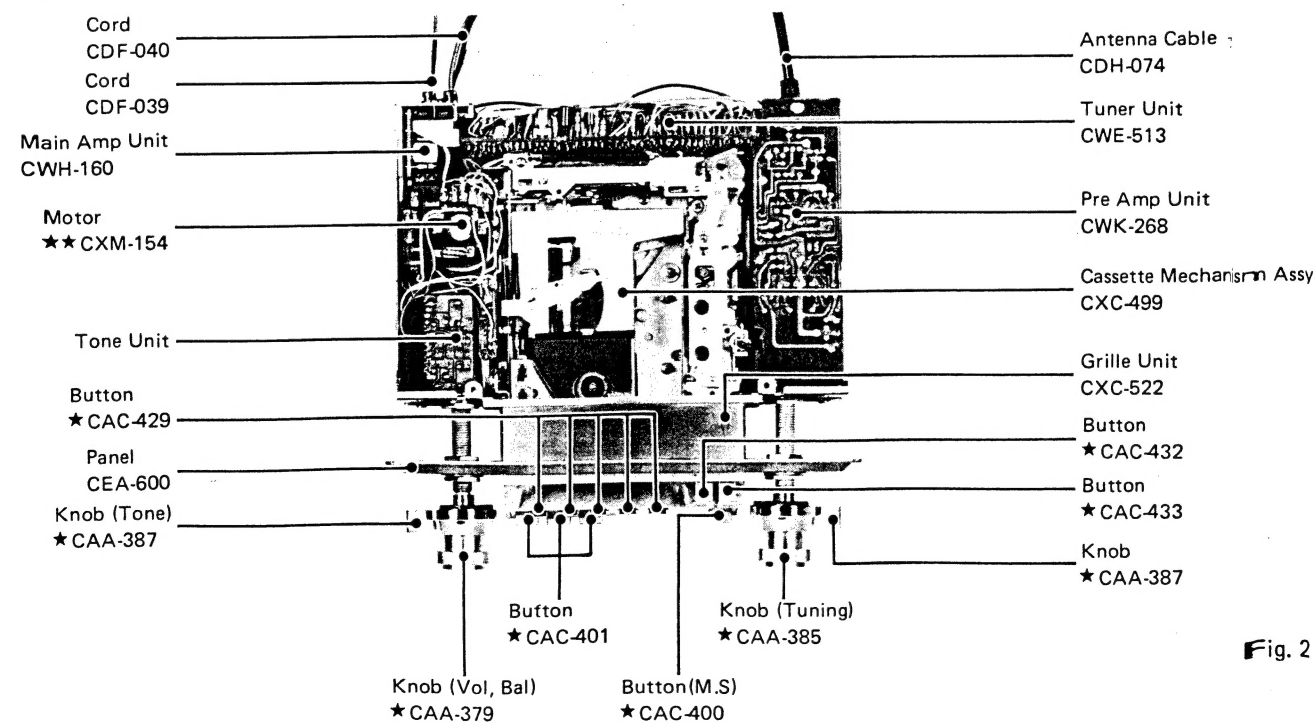


Fig. 2

2. CIRCUIT DESCRIPTION

- Block Diagram (UKE-7100)

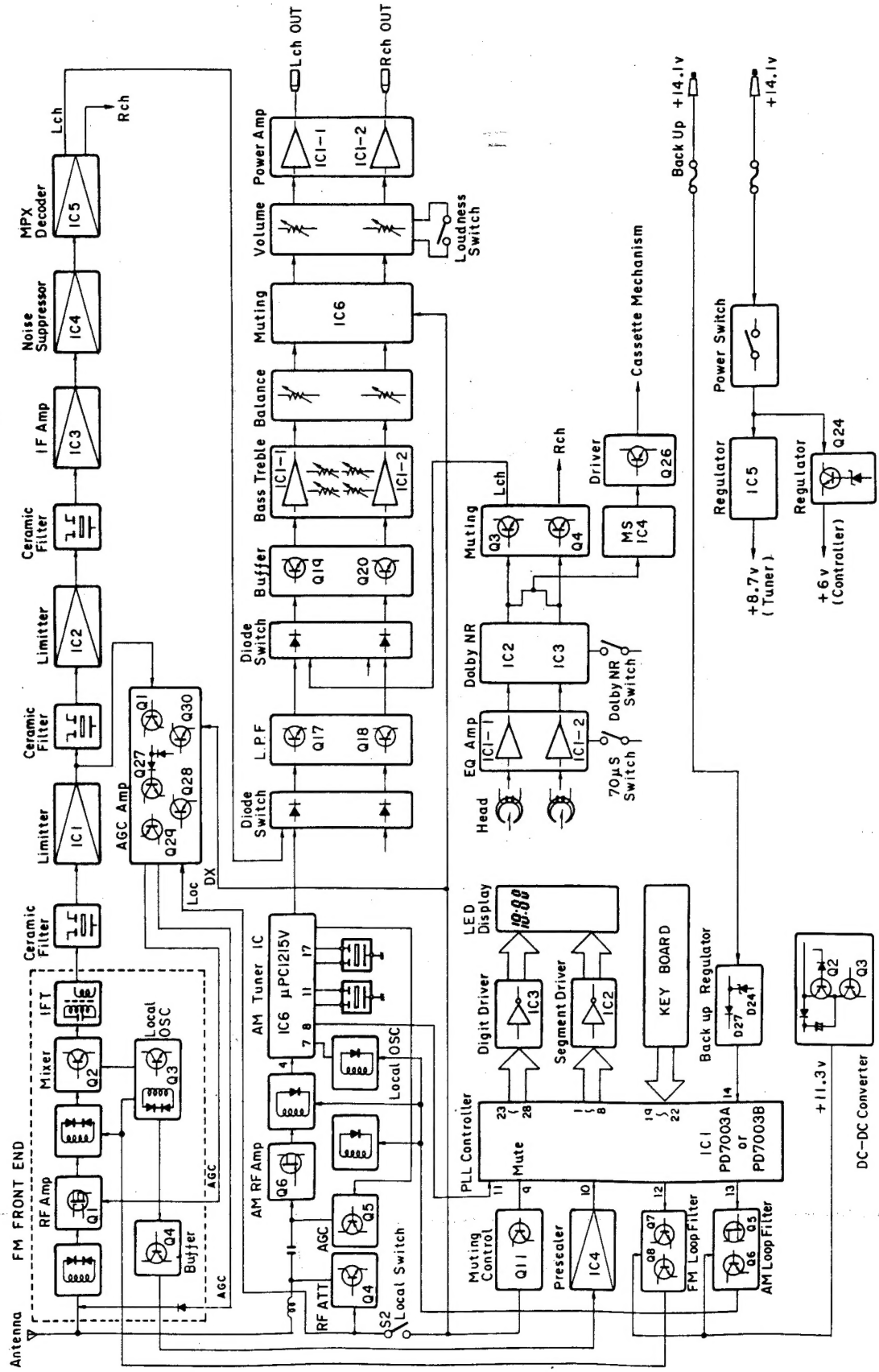


Fig. 3

- **Block Diagram(UKE-3100)**

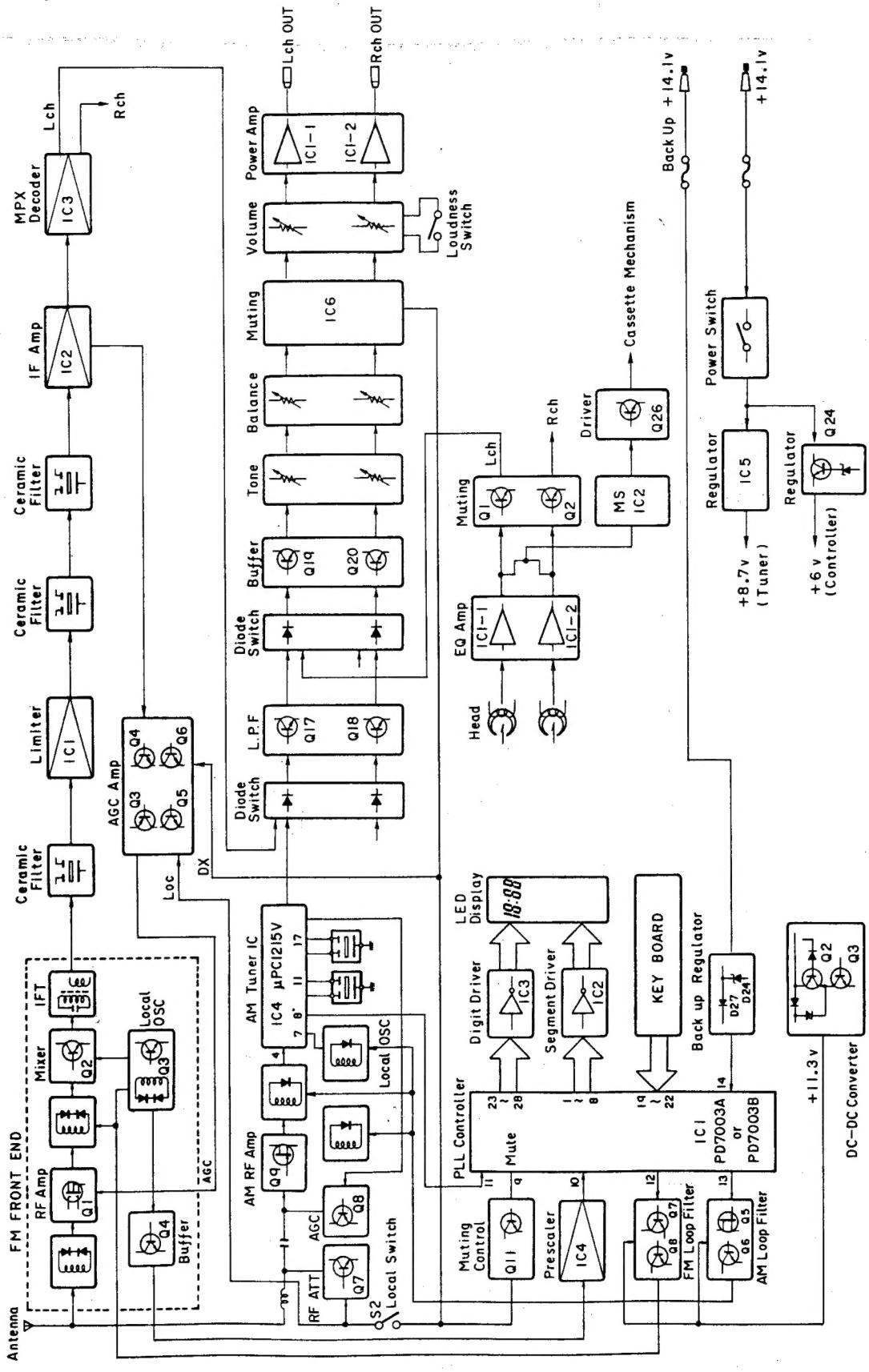


Fig. 4

2.1 PD7003A (PD7003B) CONTROL IC FUNCTIONAL AND PLL SYNTHESIZER TUNER

The PD7003A (PD7003B) is a control IC for PLL synthesizer tuners developed to enable FM reception at 200kHz steps and AM reception at 10kHz steps. When some of the pins of this IC are connected via a diode (switch matrix, mentioned later), a microprocessor is activated in line with the program written beforehand into the IC and scan, seek, memory and other control operations are performed by the 28-pin CMOS LSI. This is combined with the M54522P (IC2) driver IC and M54561P (IC3) digit driver IC for the display LED to configure the PLL synthesizer tuner.

The PLL synthesizer tuner is now described centering on the circuitry operations of the UKE-7100/US, CA (control unit: CWM-124).

Fig. 5 shows the composition of the phase-locked loop in the FM mode. The VCO (CWB-090 local oscillator) frequency, fvco, is amplified by Q4 of CWB-090 up to the level the 1/20 fixed divider μPB552C IC4 can divide it, and the prescaler output signal of IC4 enters pin 10 of PD7003A (PD7003B).

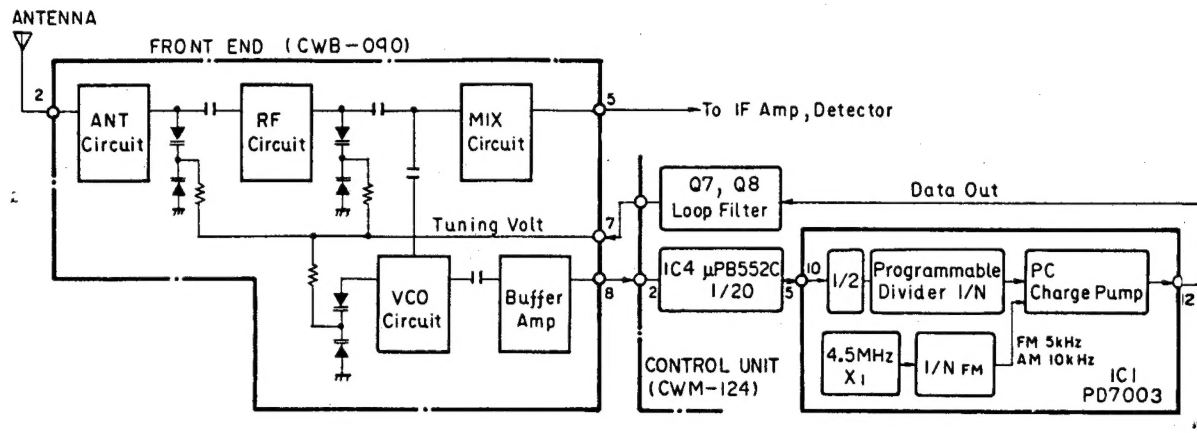


Fig. 5

The frequency is then divided in half again within PD7003A (PD7003B).

The signal is then fed into the programmable divider which is microprocessor-controlled inside PD7003A (PD7003B) and the frequency of the signal is divided by the required ratio. A frequency of 4.5MHz, which serves as the PD7003A (PD7003B) clock pulse (fundamental frequency that drives the microprocessor), is generated by crystal oscillator X1, this is divided down (1/900) to 5kHz to form the reference frequency of the phase comparator whose phase is then digitally compared with that of the frequency-divided signal, and the pulse centering at 5kHz is fed out from pin 12 via the charge pump. The frequency deviation is converted into shifting voltage from a certain DC center voltage. When the frequency is higher than the optimum, positive pulse appear at the output and the more it deviates, the wider pulse-width and vise versa.

This output is then fed into the loop filter (active filter composed of Q7 and Q8), the charging and discharging of C14 and C15 are used, a DC voltage is formed and this is applied to pin 7 of CWB-090 as the tuning voltage. The oscillation frequency of the CWB-090's local oscillator is fixed and the phase-locked loop is then completed. This mode is now locked and the tuning voltage—between approx. 3.0V and 8.8V— is made constant. The ANT, RF and VCO circuits are all controlled, the reception frequency is determined and this is held.

The above can be expressed as follows:

$(fvco/20)/2/N = fr = 5kHz$

$fvco = N \times 40 \times fr$

$= N \times 200kHz$

This means that every time the programmable divider N counts, the reception frequency changes in a 200kHz step.

In the AM mode the tuner unit (CWE-512) IC6 local oscillator output enters pin 11 of PD7003A (PD7003B) (pin 12 of CWM-124), its frequency is divided down by the programmable divider to fr = 10kHz, phase comparison is performed as with FM, a pulse with a frequency of 10kHz as the reference is fed out from pin 13, a DC voltage is formed by the Q5 and 6 loop filter, this is supplied to the ANT, RF and OSC block of the AM tuning circuit, the oscillation frequency is fixed and locked. The AM tuning voltage range from 0.9V to 8.8V, with the result that the frequencies vary within a 530kHz to 1620kHz range.

The related formula for the AM mode is.:

$fvco = N \times fr$

the fr serves as the channel spaces (10kHz) and tuning is performed in 10kHz steps. This completes the description of the PLL section.

PD7003A (PD7003B) specifications

	FM	AM
Reception frequency	87.9 ~ 107.9MHz	530 ~ 1620kHz
Channel space	200kHz	10kHz
IF offset	10.7MHz	450kHz
Phase comparison reference frequency	5kHz	10kHz
Input frequency	4.93 ~ 5.93MHz	980 ~ 2070kHz
Prescaler	1/2 built-in	None
Programmable counter frequency-division ratio N	493 ~ 593	98 ~ 207
Number of channels	101	110

For instance, when the reception frequency is 87.9MHz, the local oscillator frequency is 98.6MHz, a local oscillator voltage of about 200mVrms (560m$V_{p\text{-}p}$) is fed out from pin 8 of Front End CWB-090, and this enters prescaler IC4. The minimum acceptable level of this IC is 150m$V_{p\text{-}p}$ and frequency division is not performed at lower levels. The uppermost level is 1$V_{p\text{-}p}$. when the above frequency is divided (1/20), the result is 4.93MHz. The frequency is then divided in half again within PD7003A (PD7003B) to become 2.465MHz and this becomes 5kHz when divided down (1/2x493) by the programmable divider (N = 493). This matches the reference frequency and phase comparison becomes possible. After digital phase comparison, the signal enters the loop filter via the charge pump to become a DC voltage.

When the manual UP key is depressed once, D1/K1 are shorted by the diode and when this is sensed by the K1 pin, the up counter inside the IC counts up and one is added to the programmable divider N to make 494, thereby the frequency steps up for one channel on the frequency scale to tune into 88.1MHz.

In the SCAN mode, the up-counter counts up one by one with the D3/K2 matrix, single units are added in succession to the programmable divider N starting at 493 and both the reception frequency and the display are changed. When certain frequencies are received, a squelch signal from the tuner enters the control unit, transistor Q12 is turned on, the D6/K2 matrix is energized and the scanning operation is stopped.

In this case, scanning is automatically started with the PD7003A (PD7003B) microprocessor after 5 seconds. To stop this operation, the SCAN key is depressed again. AM operations are the same as those for FM.

The maximum frequency switchable by a CMOS IC is about 7.2MHz. This means that the FM local oscillator signal frequency cannot be divided directly and that a prescaler is required to divide the frequency down to about 5MHz previously.

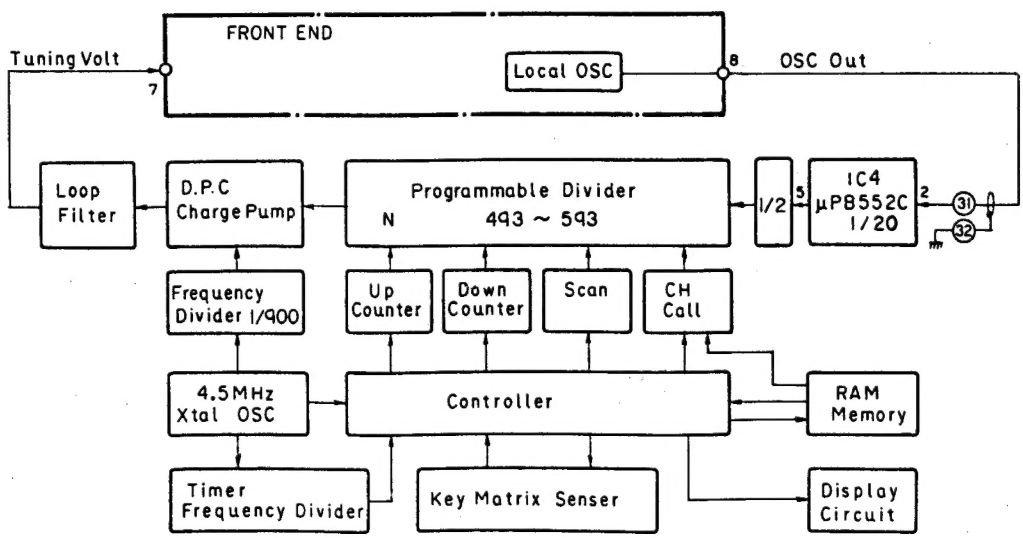


Fig. 6

2.2 CHARGE PUMP AND LOOP FILTER

Fig. 7 shows the FM loop filter and charge pump circuit. The phases of the reference frequency and the VCO frequency divided by the prescaler and programmable divider are compared by the digital phase comparator. Since the output pulse cannot be connected directly to the active filter, the PD output is fed out of the complimentary switching circuit (charge pump) which consists of a N-channel MOS FET and a P-channel MOS FET. In the above figure the switching is indicated in the three modes of the charge pump: N OFF, P ON; N ON, P OFF; and N and P both OFF floating. Either a positive or negative output pulse appears above a certain DC voltage.

When the pulse is negative, Q7 is cut off, the Q8 collector voltage rises, C14 and 15 charge and the tuning voltage increases. When the pulse is positive, Q7 turns ON as does Q8, the C14 and 15 discharge through Q8 and the tuning voltage decreases. The filter is configured as an active filter with the C14 + C15 and R13 time constant. The repeat pulse near the reference frequency is grounded by the R14 and C16 single-stage filter and turned into a perfect DC tuning voltage.

The FM reference frequency is 5kHz, that for AM is 10kHz. The time constant of the active filter differ in each case and they are related to the PLL lock-up time.

Even in the phase-locked loop mode, the PD output pulses are such that the above three modes are repeated and the lock mode is maintained.

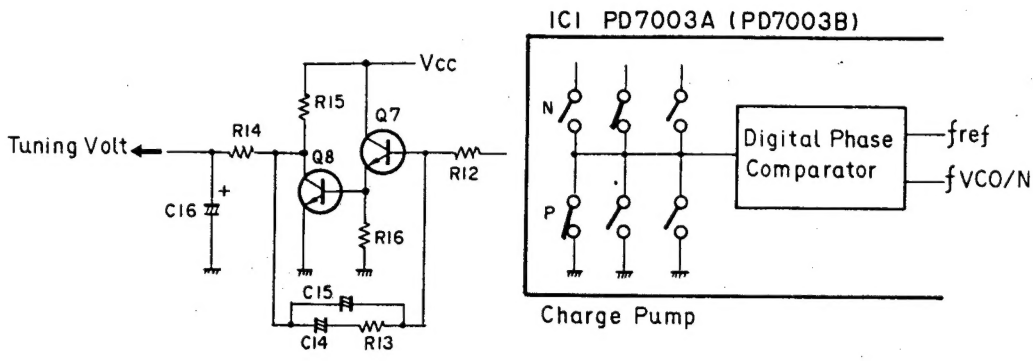


Fig. 7

2.3 DISPLAY CONTROL SECTION

A dynamic lighting system is adopted for the PD7003A (PD7003B) display with the LEDs being lighted in synchronization with the D1 through D6 (PD7003A (PD7003B) pin 28 through pin 23) digit signals. A sweep is performed in a period of about 3 msec. The digit signals, used to indicate the digits (D1=1st digit; D2: 2nd digit), are fed out from PD7003A (PD7003B). However, this model does not use D6 for displaying. The LEDs employed for displaying the numbers are composed of 7 segments and, with the addition of the dot [.], the 8-segment output is fed out from the IC, the required segments of the LED for lighting are synchronized with the digit output and segment output and turned on, in each case at a period speed of 3 msec, with a sweep being performed from the highest digit to the lowest digit.

The above process is explained using Fig. 8. D1 through D6 are active at "L" and S1 through S8 are active at "H". If the description is simplified and confined to one LED, then, as in Fig. 8, the LED lights only when the digit output is "L" and the segment output is "H".

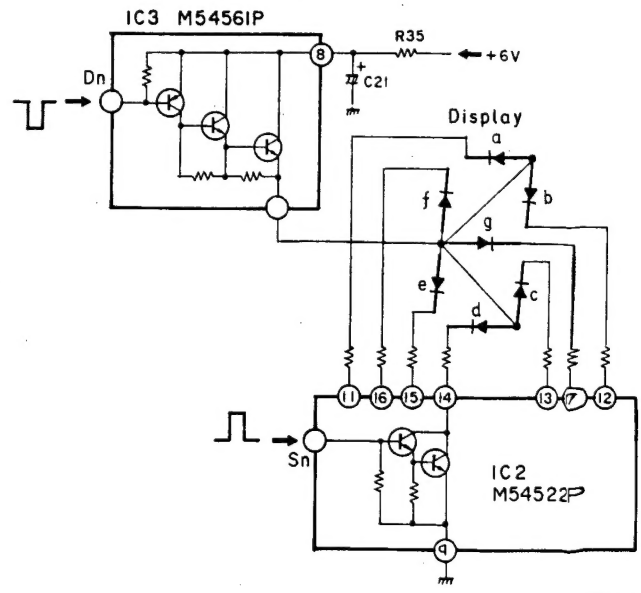


Fig. 8

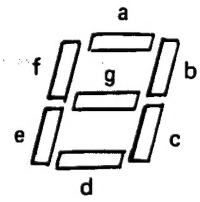


Fig. 9

More specifically in the above figure when digit output Dn (IC output) is "L", the IC3 darlington transistors turn ON and when the segment output Sn is "H", IC2 darlington transistors turn ON, segment 1 of the LED lights. For instance, when the first digit output goes to "L", and segments (b) and (c) go to "H", "1" is indicated and lighting is repeated as in Fig. 10 at a speed of 3 msec.

LED lights when digit output and segment output are synchronized. A signal of 3 msec. sweeping period is distributed to digit outputs by turns.

Much fewer IC pins are used than with a DC voltage. However, the dynamic signal which causes the lighting is a $5V_{p\text{-}p}$ square wave and so care must be taken lest it should not interfer RF and power supply curcuit.

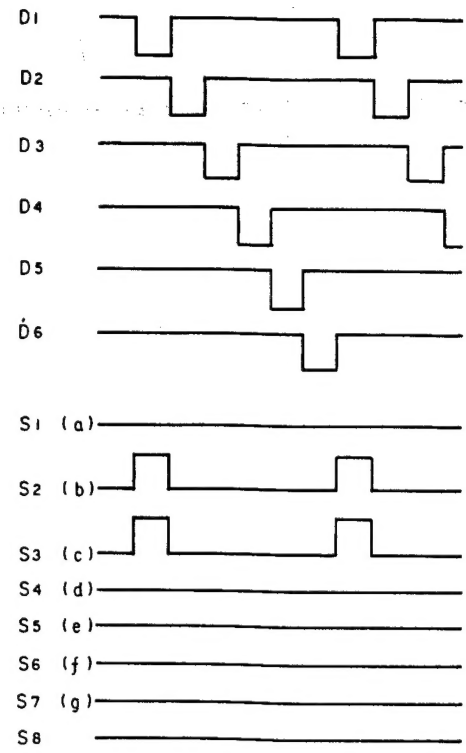


Fig. 10

2.4 μPD7003A (PD7003B)

TERMINAL NUMBER	SYMBOL	FUNCTION
1 to 8	S1 to S8	display segment drive output
9	MUTE	muting output during tuning operation
10	FM IN	FM station input
11	AM IN	AM station input
12	FM DO	FM phase comparison output
13	AM DO	AM phase comparison output
14	V_{DD}	power supply terminal +5V
15	V_{SS}	power supply terminal common ground
16 and 17	Q IN and Q OUT	4.5 MHz crystal oscillator circuit input and output
18	CS	chip selector input CS= "L" also, key input inhibit using OPEN and tuner operation using CS="H"
19 to 22	K1 to K4	key sensing input
23 to 28	D1 to D6	display digit drive output/key scan output

2.5 SWITCH MATRIX

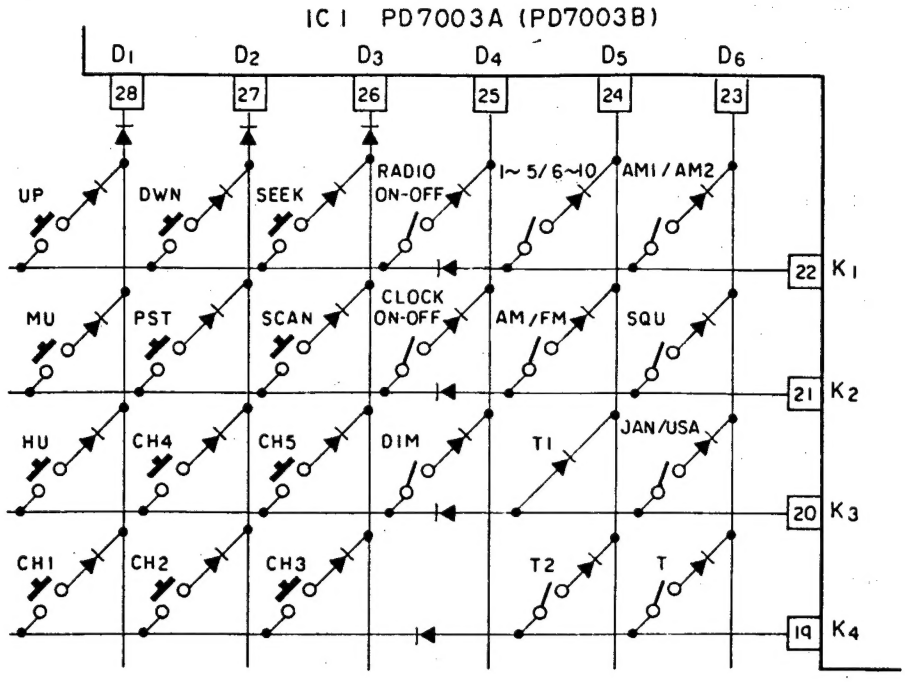


Fig. 11

All the functions of the UKE-7100/US, CA including scanning, memory and band (display) selection are controlled by the PD7003A (PD7003B) by sensing its D1 through D6 display signals at pin 22 through pin 19 or key sensing inputs K1 through K4.

For instance, when Q15 of the Q15/Q14 transistor switches of CWM-124 turns ON, D5 and K1 are connected and memory station addresses 1 through 5 are selected. When Q15 turns OFF, stations 6 through 10 are selected.

When changing over to AM, for example, D5 and K2 are not connected unless Q14 is turned ON. Q13 connects D4 and K1 and unless this turns ON, the radio does not come ON and the frequency is not displayed. Memory and station call is selected by the moment switches (electro-conductive rubber) in the switch unit (CWS-123), while UP/DOWN selection is performed by a mechanical switch. The entire matrix is crossed, so to prevent malfunctioning when switches are depressed simultaneously, diodes D7 ~ D10, D14 ~ D19 are inserted so that one digit signal output does not flow into another.

The last Q12 squelch transistor switch (for stopping the scanning operations) is inserted across D6/K2, and during FM SQ, the squelch input is at "H" (about 2V) when there is no signal from CWE-512 at pin (3)of CWM-124 and at "L" when there is a signal at the antenna input. At "L" Q3 (tuner unit) is cut off, current flows through R30 from the power supply, Q12 (control unit) turns ON, the D6 digit signal enters K2 and when this is sensed, the scanning operations are terminated.

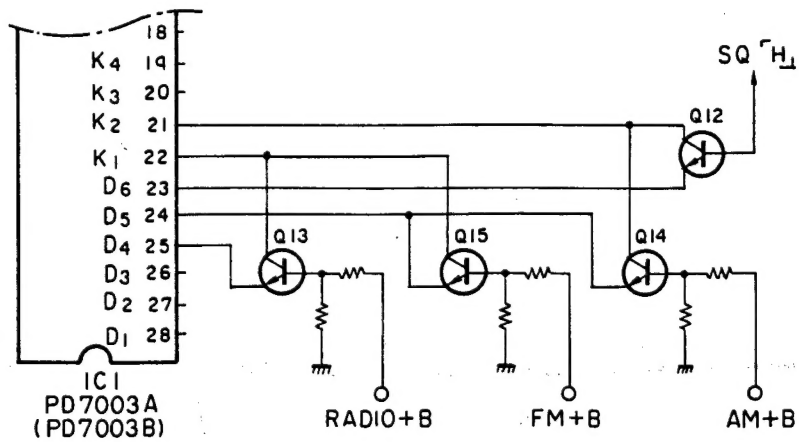


Fig. 12

2.6 DESCRIPTION OF OTHER CIRCUITS

• Voltage doubler circuit (voltage multiplier)

In order to improve the voltage drop characteristics of the PLL synthesizer tuner, a tuning voltage is produced. In order to keep the supply voltage of the loop filter constant even when mains voltage drop, the transistor is switched with the digit signal, the signal from the transistor is rectified and superimposed over the 13.8V power to provide a 25V voltage, an 11V stabilized voltage is yielded by the voltage stabilizer and this is used as the supply voltage of the loop filter.

Here, supply current through R33 (15kΩ) is switched on and off by the diode OR logic circuit consisting of D2, D4 and D6 of PD7003A (PD7003B), switches Q1 ~ Q3 ON and OFF. The output is then rectified and added onto 13.8V DC elevating the voltage up to 25V. Then, 11V stabilized current is available even when the line voltage drops down to 10V.

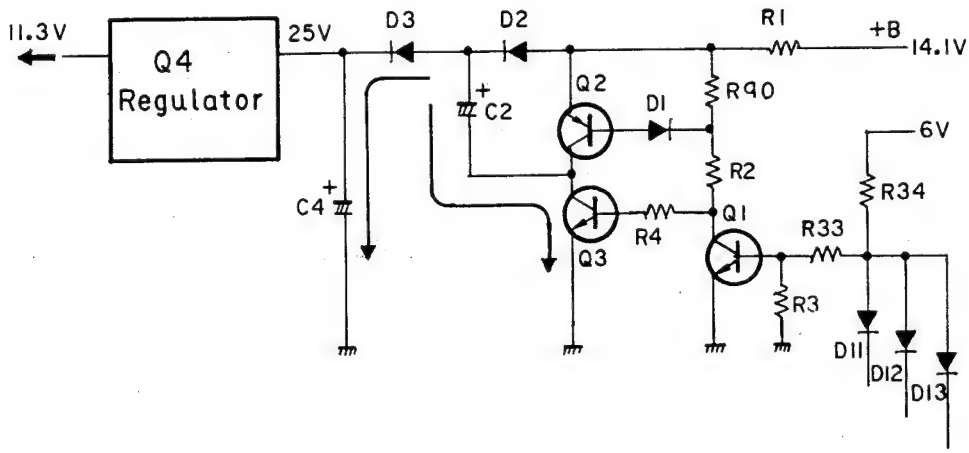


Fig. 13

The voltage doubler circuit is now descrived. In the above figure (Fig. 13) the three D11, D12 and D13 diodes are connected to the PD7003A (PD7003B) D2, D4 and D6 pins, and with the digit signal timing an "OR" logic is formed by the diodes for the H/L swing of the IC's supply voltage, the Q1 ON/OFF duty ratio is set to 50% and the Q2 pnp and Q3 npn transistors are switched ON and OFF with the collector voltage.

When the Q1 collector is at "H" (Q1 is cut off), Q2 turns OFF and Q3 turns ON, C2 is charged through D2 and Q3 to about 13.1V [13.8V ~ 0.7V ($D2V_F$)]. When Q1 turns ON, the collector voltage drops, Q3 is cut OFF, Q2 turns ON and the Q3 collector voltage rises to about 13.6V (with V_{CE} set = 0.2V). When this happens, the + side of C2 is set ot 26.7V with the Q3 collector voltage added to the previous charge amount. At this time D2 is cut off, D3 turns ON, C4 is charged with (26.7 – V_F) V and by a repetition of this operation, a voltage of about 25V is produced.

2.7 DESCRIPTION OF TUNER SECTION

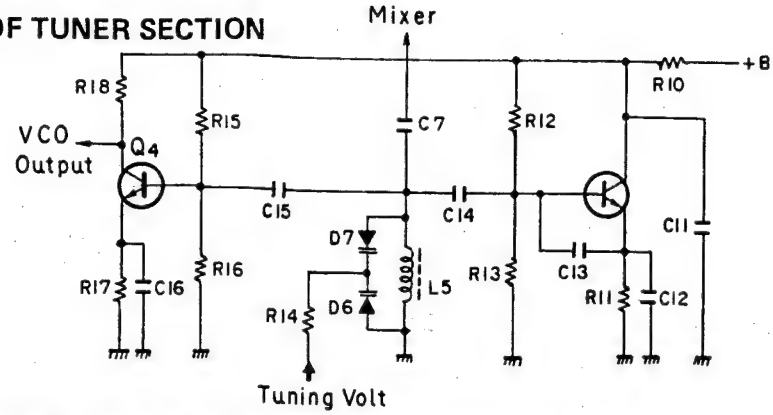


Fig. 14

• FM section

The output signal generated by the local oscillator circuit enters the control unit CWM-124 via the buffer amplifier Q4.

The tuning voltage (DC) generated in the control unit is fed to the pin 7 of the CWB-090, and applied to the variable capacitance diodes 1SV101 in the ANT, RF and local oscillator circuit.

The local oscillator circuit is a normal modified clapp type, and generates a signal at the reception frequency + 10.7MHz. A part of the oscillator output is injected to the base of the mixer transistor Q2, and 10.7MHz difference signal is taken out at the T1 secondary.

This signal passes through the ceramic filter CF1, CF2, and is amplifier by 20dB by IF amp IC M5215L. It then passes through CF3, and enters pin 1 of the quadrature detector IC LA1140.

Pins (4), (10): GNP

Pin (5): The noise level is determined under zero-signal conditions by the resistor across this pin and ground. It is set to 47kΩ, approx. −30dB. (zero-signal noise level ARC for 100% modulated signals).

Pin (6) MUTE IN:

When this pin is grounded, there is no soft muting effect, the noise level increases and −3dB limiting sensitivity increases.

Pin (7): Quadrature V reference; center meter between pins (7) and (13).

Pin (9): Limiter output

Pins (11), (13): Quadrature detection stage

Pin (14): Mute signal output

Under no ANT input or detuned condition, a DC Mute output of 2 to 3V is fed out to this through OR circuit detecting the input level and S curve. ARC soft-muting is made with the voltage applied to pin 6.

This voltage becomes 0V with the ANT input higher than a certain level, and it is utilized as a signal for scan stop.

Pin (15): Signal strength indication output

A DC voltage in proportion to IF signal level or antenna input level entering pin (1) of IC LA1140 is obtained. This voltage is 0V under zero-signal conditions, about 5V at an ANT input level of 60dB and it changes very little above this level. The voltage adjusted by the VR4 using this voltage is applied to pins (7) and (8) of LA3375P. Pin (7) is the stereo demodulated output high-cut control pin, and when voltage decreases, the high-cut amount increases. Pin (8) is the separation control pin, and when the voltage decreases, the separation deteriorates.

Pin (16): AGC output

When there is no LA1140 input signal, the voltage is 4V and when the input increases, the voltage decreases gradually to 0V.

IC4 LA2110 is an FM noise canceler IC in a 16-pin single end package. The FM detection output enters pin (7) while a low-pass filter is configured by the RC elements across pins (5)and (6). This filter circuit functions to allow signals with a frequency of less than 100kHz to pass through and also to delay the signals.

The RC elements across pins (6) and (9) configure an active high-pass filter which takes out noise components with a frequency of over 100kHz. the IC's signal path gate circuit is switched ON and OFF by these noise components which cuts out the signals for a short period of time only when there is noise present. The above-mentioned low-pass filter is used since it is necessary to delay the signal for the time until noise detection is made.

The IC5 LA3375P FM stereo demodulator functions so that when the stereo composite signal accompanied by the 19kHz signal enters, the VCO inside the IC is locked onto the 19kHz frequency, a signal with double the frequency (38kHz) is created, the 38kHz carrier is injected into the carrier-suppressed double side band (CSDSB) stereo signal, this is detected as AM, the stereo (L − R) sub channel is matrixed with the (L + R) main channel and L and R signals are taken out by;

$$(L + R) + (L - R) = 2L$$
$$(L + R) - (L - R) = 2R$$

This IC also cintains a circuit that attenuates the sub channel (L − R) with the voltage applied to pin 7 of the IC. The voltage of pin 15 of FM IF IC LA1140 is applied to pin 7 of LA3375P and varies in proportion to ANT input. VR4 is to be adjusted to obtain L→R and R→L separation of 5dB when ANT input is 20dB (μV). When the level is increased from this ANT input level, the separation is continuously improved and a separation of about 40dB is produced at a level of 60dB (μV).

The signal meter output is applied to pin (8) and when the audio components of the stereo demodulated output low, a high-cut circuit works and a drop of about 3dB is marked from the deemphasis at 10kHz with an ANT input level of 20dB (μV).

- **AM section**

In terms of constants the AM circuitry is virtually the same as that of the conventional voltage synthesizer tuner. The ANT input is received aperiodically by the Q6 booster FET, and the 50Hz power supply induction is cut out by the capacitor in IB4 and L7 high-pass filter.

The local oscillator circuit is powered by the oscillating circuit of IC6 and the resonating circuit of D15-3 and C54, C55, C57 and L11. The output of the local oscillator is amplified by the buffer of IC6 and output from pin 8 of IC6. This signal then passes through pin 12 of CWM-124 and goes to pin 11 of PD7003A (PD7003B) where the signal becomes DC at loop filters Q5 and Q6 according to the AM PD output from pin 13. This tuning voltage is applied to the AM variable capacitance D15-1, D15-2 and D15-3 of CWE-512, forms a loop and is locked. The oscillation voltage of the local oscillator circuit is sent to the MIX circuit of IC6 where it is mixed with the input signal and converted to a 450kHz IF frequency. The signal then passes through a 4-element ladder ceramic filter (CF4) that has excellent selectivity, is amplified by the IF circuit of IC6, undergoes wave detection and becomes AM output.

2.8 LEVEL DIAGRAM (UKE-7100)

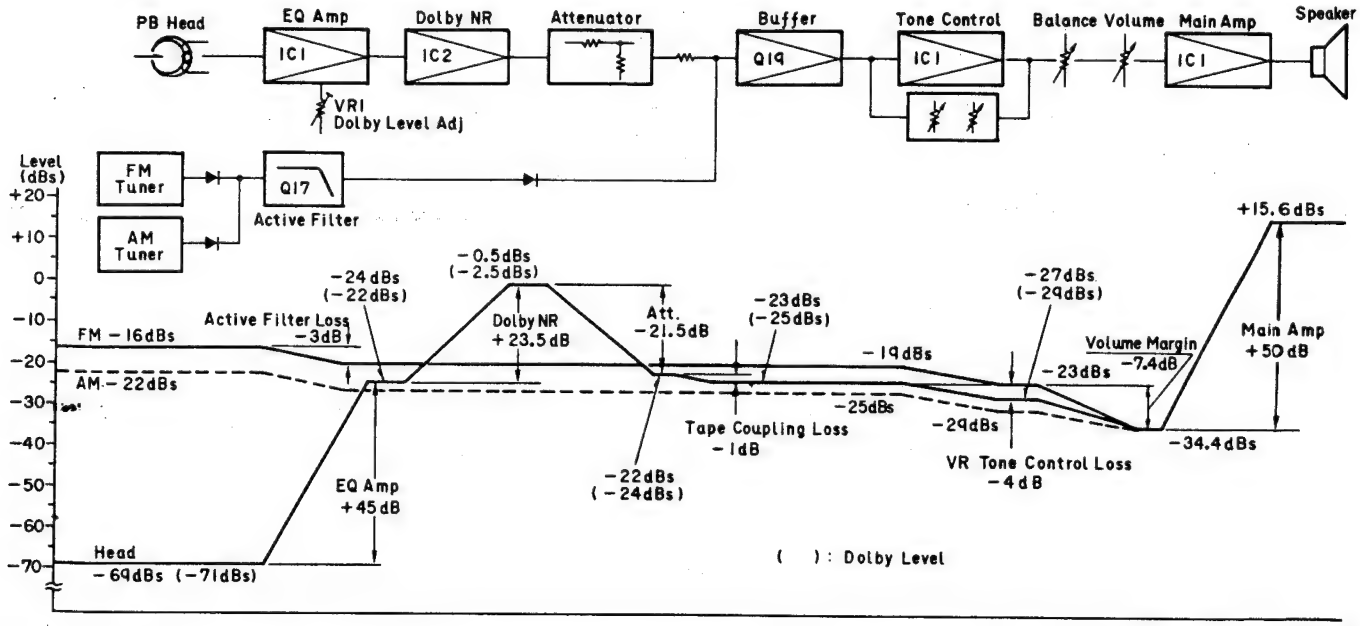


Fig. 15

2.9 LEVEL DIAGRAM (UKE-3100)

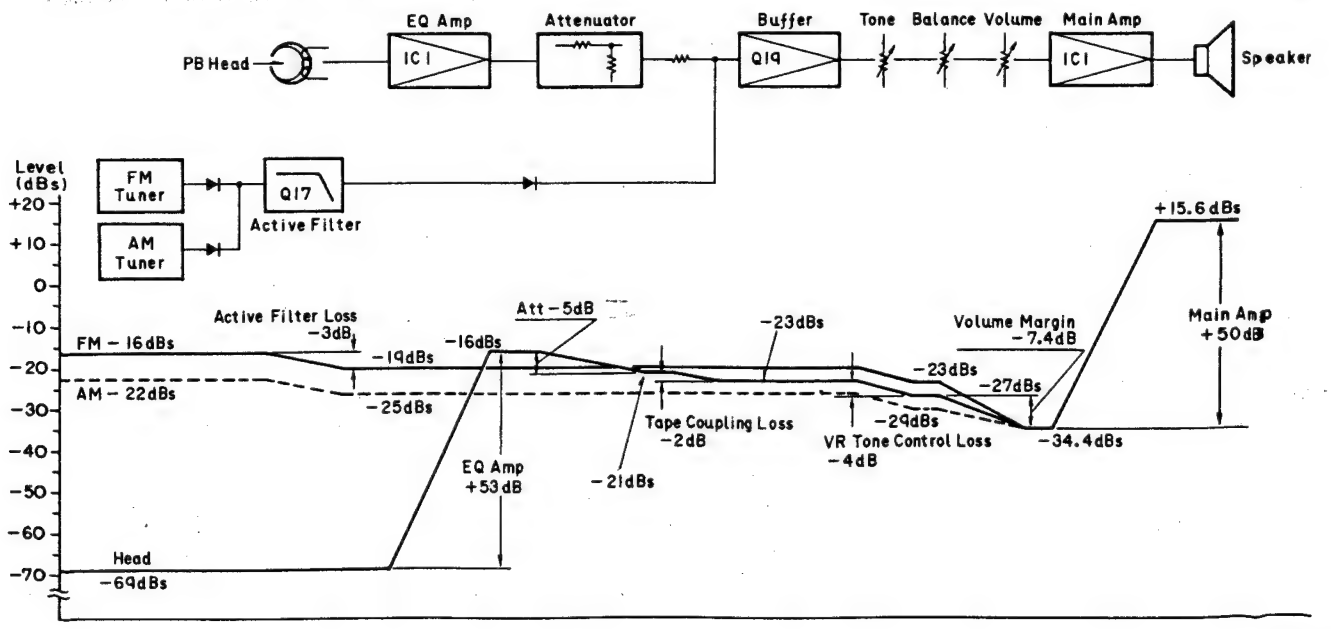


Fig. 16

3. ADJUSTMENT

3.1 DOLBY NR LEVEL ADJUSTMENT (UKE-7100)

- **Connection Diagram**

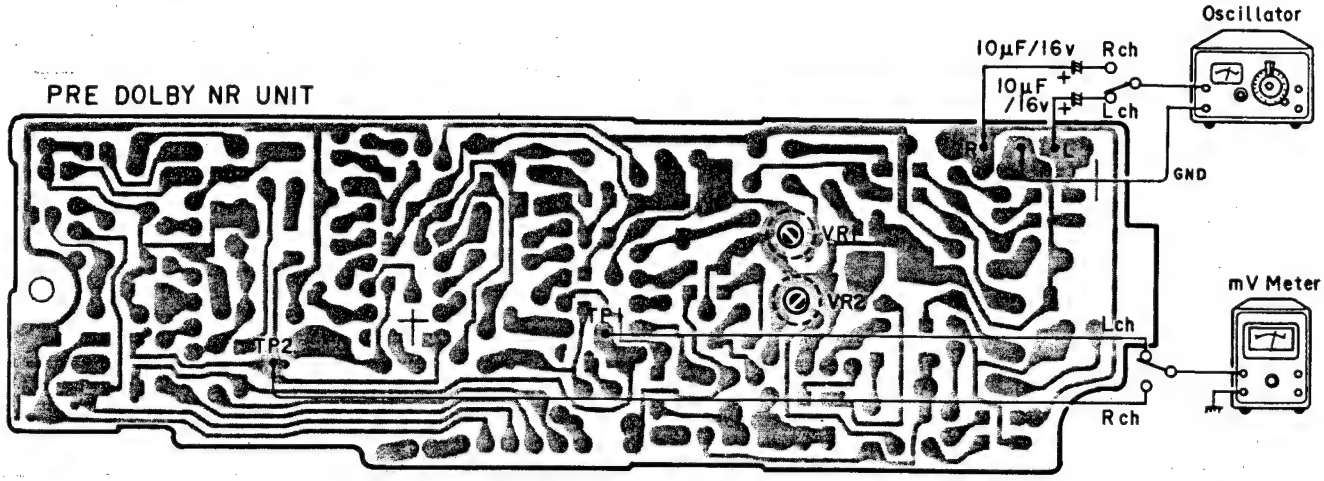


Fig. 17

- **To Adjust**

1. Set the Dolby NR switch to OFF.
2. Playback the Dolby level calibration tape (400Hz, 200nwb/m) and adjust VR1 (L ch), VR2 (R ch) so that the mV meter shows 580mV (−2.5dBs).

3.2 DOLBY NR PERFORMANCE CONFIRMATION (UKE-7100)

- **Connection Diagram (Shown in Fig. 17)**
- **To Check**

1. Turn the Dolby NR switch OFF and playback an unrecorded (blank) tape.
2. Apply a 5kHz signal from the oscillator and adjust the oscillator output level so the mV meter shows −24.9dBs (44 mV).
3. Turn the Dolby NR switch ON the confirm that the mV meter shows −32.9dBs (17.5mV) ±2dB.

3.3 CRYSTAL OSCILLATOR FREQUENCY ADJUSTMENT (UKE-7100)

- **Connection Diagram**

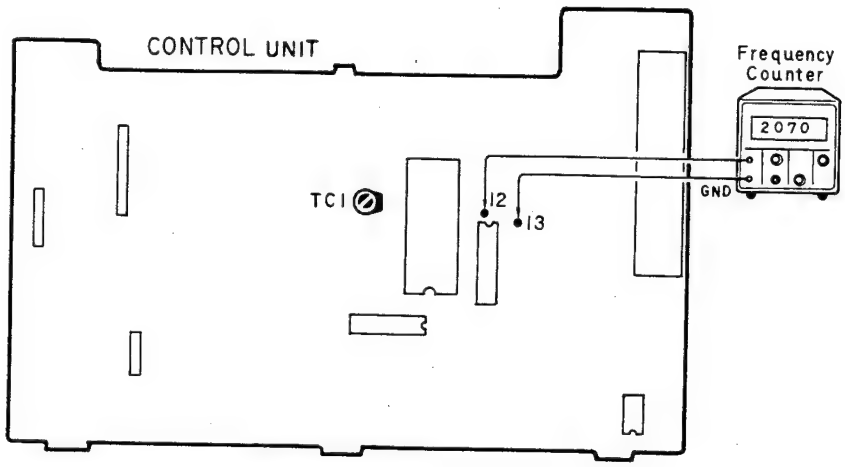


Fig. 18

- **To Adjust**

1. Set the Band switch to AM.
2. Set the reception frequency to 1,620kHz.
3. Adjust TC1 to make the frequency counter show 2,070kHz ± 40Hz.

3.4 FM IF ADJUSTMENT (UKE-7100)

- **Connection Diagram**

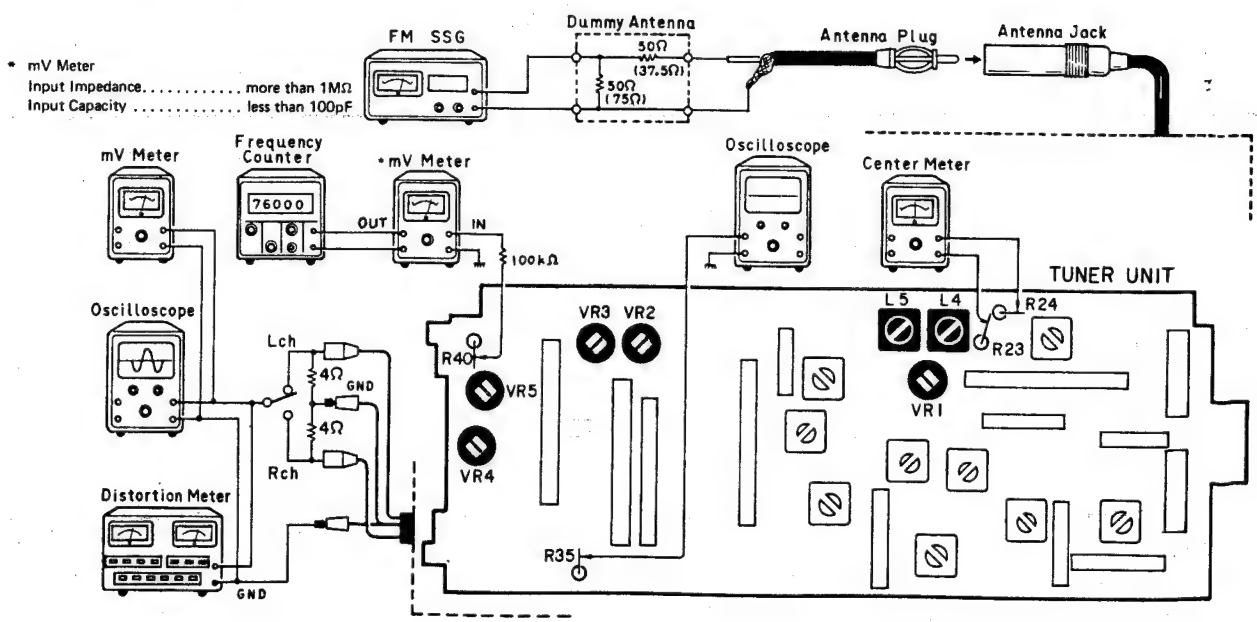


Fig. 19

- **To Adjust**

1. Set the Mono/Auto switch to MONO.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG and tune 98.1MHz.
3. Adjust L4 to make the center meter show 0.
4. Adjust L5 to achieve minimum distortion.

3.5 FM TRACKING ADJUSTMENT (UKE-7100)

- **Connection Diagram**

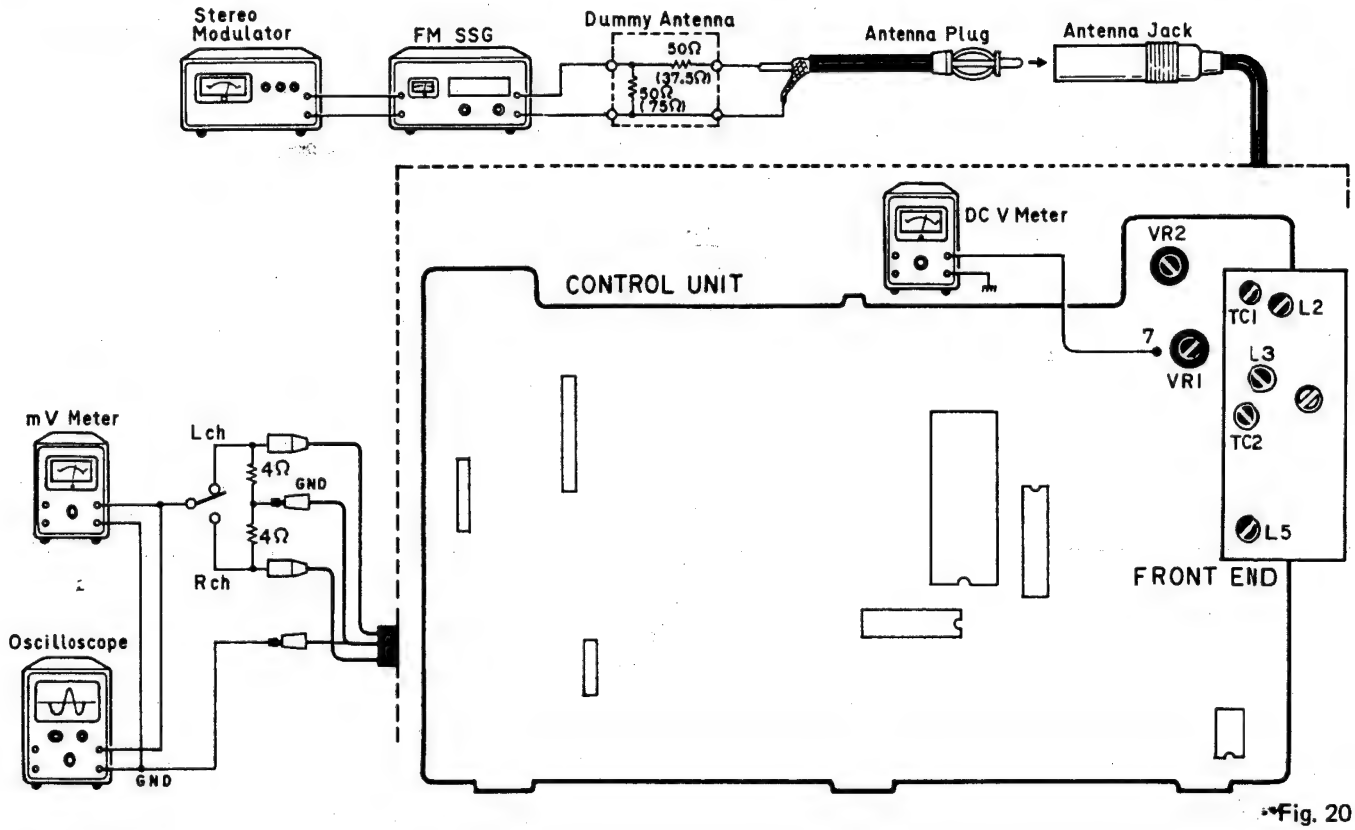


Fig. 20

- **To Adjust**

Frequency of FM SSG	Displayed Frequency	Adjusting point	DC V meter	mV meter
1.	107.9 MHz	L5	8.8 ± 0.3V	
2.	87.9 MHz		2.9 ± 0.5V check	
3. 90.1 MHz (400 Hz, 100% modulation) output level 5 ~ 10 dB (μV)	90.1 MHz	L2, L3		Maximum output
4. 106.1 MHz (400 Hz, 100% modulation) output level 5 ~ 10 dB (μV)	106.1 MHz	TC1, TC2		Maximum output
5. Repeat steps (3) and (4) alternately so that mV meter indicates the maximum output.				

3.6 FM MPX and ARC ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 19)**
- **To Adjust**

1. Set the Mono/Auto switch to AUTO. VR4 is turned in a clockwise direction.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG. Tune into a frequency of 98.1MHz and memorize the output.
3. Set the FM SSG output level to 15dB (μV) and adjust VR1 so that a reduction of 3dB is produced from the output level in step 2.
4. Adjust VR5 to make the frequency counter show 76kHz ± 120Hz by applying an unmodulated signal of 98.1MHz and 60dB (μV) from the FM SSG.
5. Adjust VR3 to reduce the oscilloscope wave to the minimum using only the modulation for the pilot signal (10%) and 60dB (μV).
6. Adjust VR2 to obtain the best separation by applying a stereo signal (1kHz, 100% modulation).
7. Adjust VR4 to obtain a 5dB separation by making the input signal 20dB (μV).

3.7 FM SCAN SENSITIVITY ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 20)**
- **To Adjust**

1. Set the Local.s switch to OFF.
2. Apply a signal of 98.1MHz, 400Hz 30% modulation and 29dB (μV) from the FM SSG, scan and adjust VR2 to make the scan stop at 98.1MHz.
3. Set the Local.s switch to ON and make the input signal 50dB (μV).
4. Scan and adjust VR1 to make the scan stop at 98.1MHz.
5. After adjustment, confirm that the scan has stopped within ±4dB (μV). (Note: Scans should be performed 1MHz apart.)

3.8 AM IF ADJUSTMENT (UKE-7100)

- **Connection Diagram**

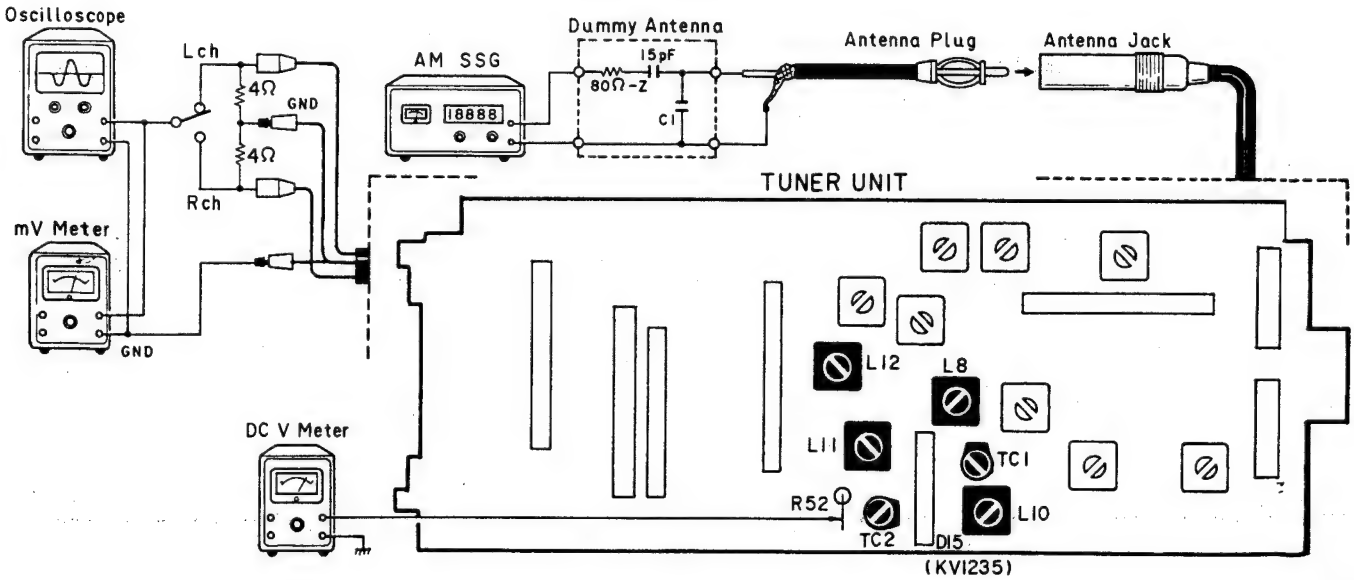


Fig. 21

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of S.S.G.

- **To Adjust**

1. Set the reception frequency to 1,000kHz.
2. Supply a 450kHz signal (400Hz, 30% modulation) from the SSG.
3. Vary the SSG output level to between 80 and 120dB (μV) and, checking the output on the mV meter and oscilloscope, adjust L12 to bring the output to its maximum. Reduce the SSG output to the minimum level at which the waveforms can be monitored.

3.9 AM TRACKING ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 21)**

- **To Adjust**

During tuning voltage adjustment of 530kHz, pay attention to the voltage difference using the color mark of D15 (KV1235).

Frequency of AM SSG	Displayed Frequency	Adjusting Point	Color of D15	DC V Meter	mV Meter
1.	530 kHz	L11	Pink	0.9 ± 0.1V	
			Colorless	1.0 ± 0.1V	
			Blue	1.1 ± 0.1V	
			White	1.2 ± 0.1V	
2.	1,620 kHz	For Confirmation Only	Less than 9V		
3. 600 kHz (400 Hz, 30% modulation) output level 30dB (μV)	600 kHz	L8, L10			Maximum output
4. 1,400kHz(400Hz,30% modulation) output level 30dB (μV)	1,400 kHz	TC1, TC2			Maximum output
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.					

3.10 AM SCAN SENSITIVITY CONFIRMATION (UKE-7100)

- **Connection Diagram (Shown in Fig. 21)**
- **To Check**

1. Set the Local.s switch to OFF.
2. Apply a signal of 1,000kHz, 400Hz 30% modulation and 27 ± 10 dB (μV) from the AM SSG, scan and confirm that scan stop at 1,000kHz.
3. Set the Local.s switch to ON.
4. Set the input signal from the AM SSG to 45 $^{+15dB}_{-10dB}$ (μV), scan and confirm that scan stop at 1,000kHz.

3.11 CRYSTAL OSCILLATOR FREQUENCY CONFIRMATION (UKE-3100)

- **Connection Diagram**

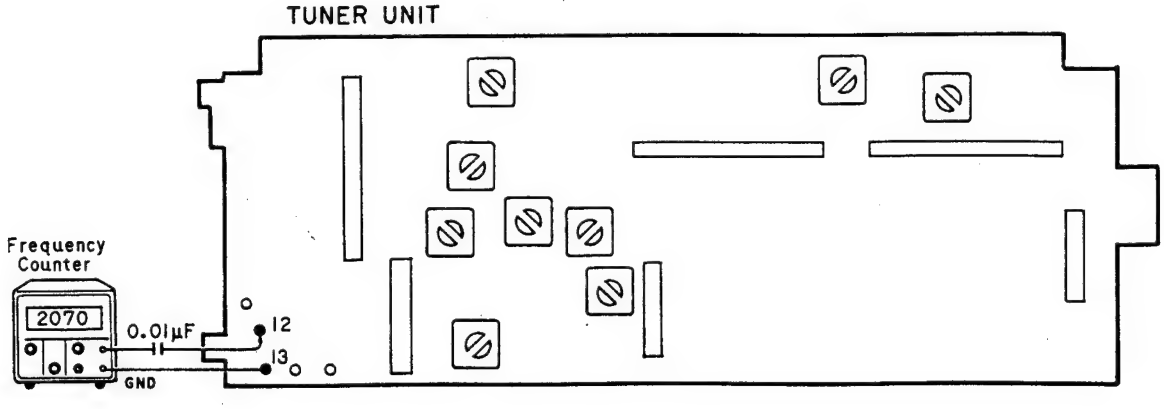


Fig. 22

- **To Check**

1. Set the Band switch to AM.
2. Set the reception frequency to 1,620kHz.
3. Confirm that the frequency at pin 12 of the Tuner Unit is 2,070kHz ± 50kHz.

3.12 FM IF ADJUSTMENT (UKE-3100)

- **Connection Diagram**

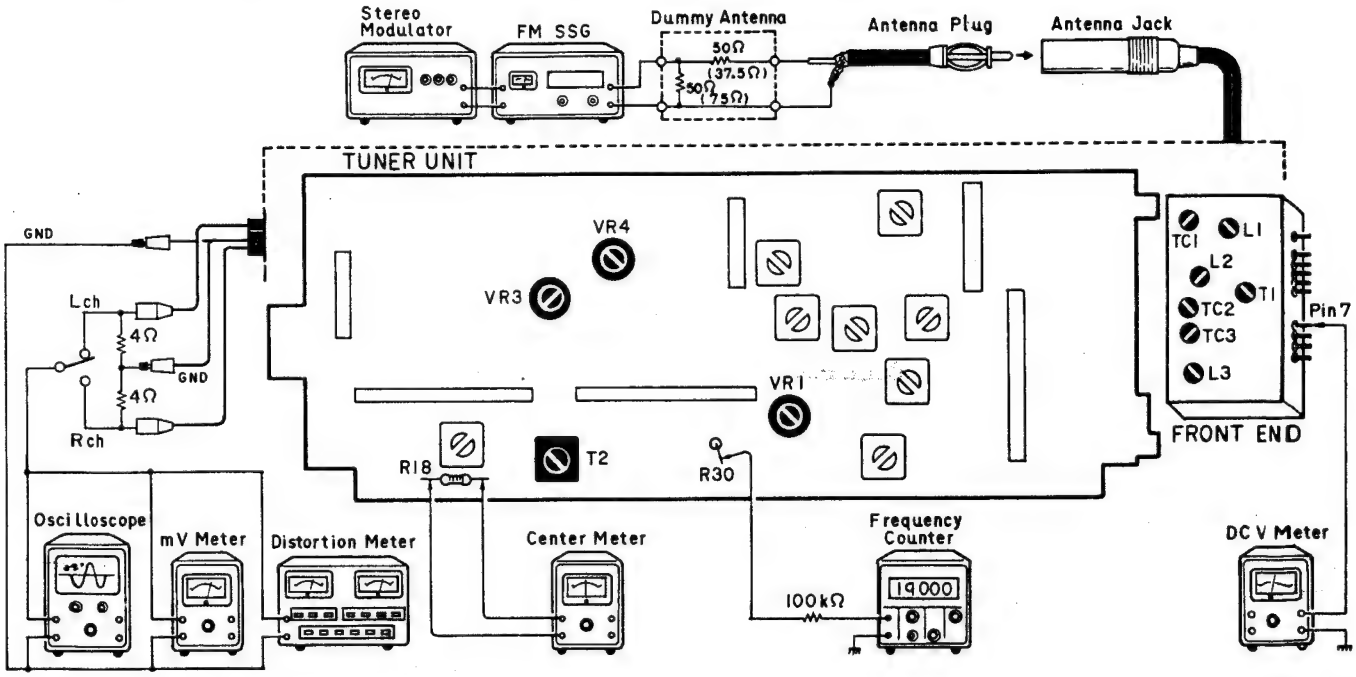


Fig. 23

- **To Adjust**

1. Set the Mono/Auto switch to MONO.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG and tune 98.1MHz.
3. Adjust T2 to make the center meter show 0.
4. Adjust T1 (Front End) to achieve minimum distortion.

3.13 FM TRACKING ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**
- **To Adjust**

Frequency of FM SSG	Displayed Frequency	Adjusting Point	DC V Meter	mV Meter
1.	87.9 MHz	L3	2.9 ± 0.5V	
2.	107.9 MHz	TC3	8.8 ± 0.3V	
3. 90.1 MHz (400 Hz, 100% modulation) output level 10 dB (μV)	90.1 MHz	L1, L2		Maximum output
4. 106.1 MHz (400 Hz, 100% modulation) output level 10 dB (μV)	106.1 MHz	TC1, TC2		Maximum output
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.				

3.14 FM MPX ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**
- **To Adjust**

1. Set the Mono/Auto switch to AUTO.
2. Adjust VR1 to make the frequency counter show 19kHz ± 30Hz by applying an unmodulated signal of 98.1MHz and 60dB (μV) from the FM SSG.

3.15 FM SCAN SENSITIVITY ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**
- **To Adjust**

1. Set the Local.s switch to OFF.
2. Apply a signal of 98.1MHz, 400Hz 30% modulation and 25 dB (μV) from the FM SSG, scan and adjust VR3 to make the scan stop at 98.1MHz.
3. Set the input signal from the FM SSG to 14 dB (μV), scan and confirm that scan does not stop at 98.1MHz.
4. Set the input signal from the FM SSG to 25 ± 10dB (μV), scan and cofirm that scan stop at 98.1MHz.
5. Set the Local.s switch to ON and make the input signal 50 dB (μV).
6. Scan and adjust VR4 so the scan stop at 98.1MHz.
7. Set the input signal from the FM SSG to 39 dB (μV), scan and confirm that scan does not stop at 98.1MHz.
8. Set the input signal from the FM SSG to 50 ± 10dB (μV), scan and confirm that scan stop at 98.1MHz.

3.16 AM IF ADJUSTMENT (UKE-3100)

- **Connection Diagram**

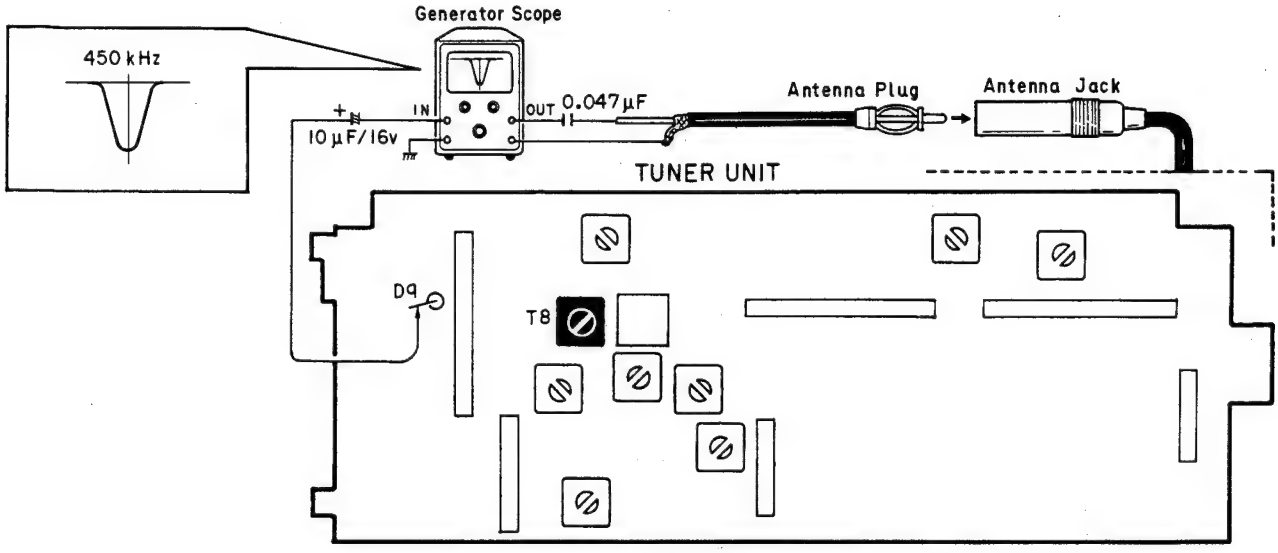


Fig. 24

- **To Adjust**

1. Set the input the generator scope to the range within which the U curve can be verified and move the coil of T8 until the U curve is adjusted to its maximum amplitude and optimum symmetry.

3.17 AM TRACKING ADJUSTMENT (UKE-3100)

- **Connection Diagram**

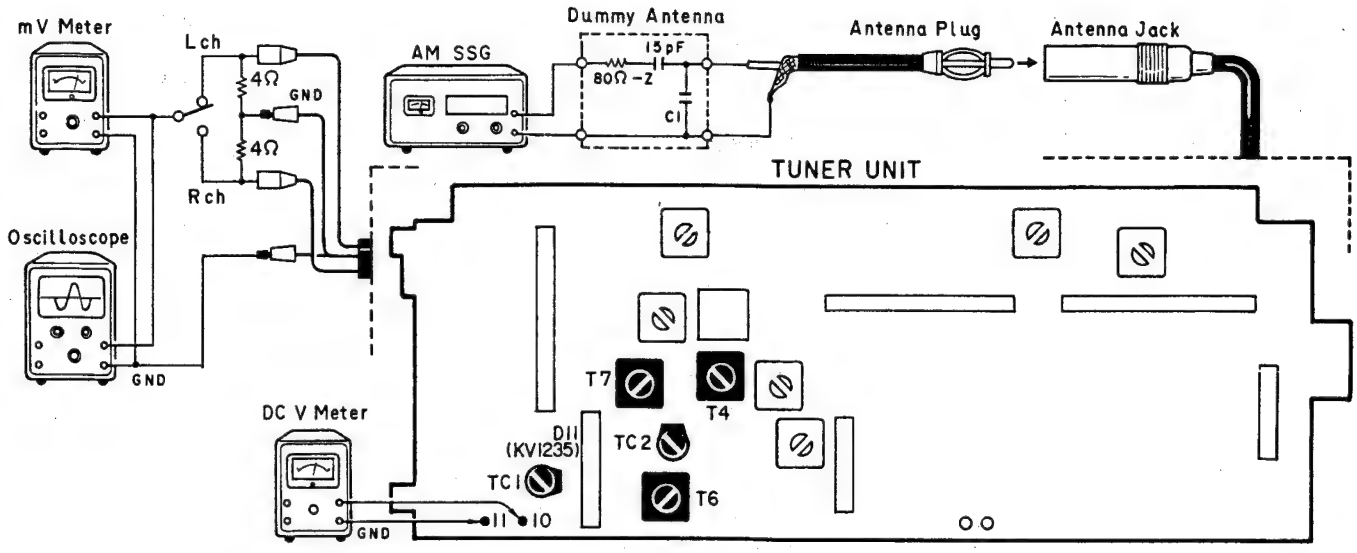


Fig. 25

NOTICE:

Select C1 so that total capacity of 80 pF is attained from the direction of receiver jack.
Z: Output impedance of the S.S.G.

- **To Adjust**

During tuning voltage adjustment of 530kHz, pay attention to the voltage difference using the color mark of D11 (KV1235).

Frequency of AM SSG	Displayed Frequency	Adjusting Point	Color of D11	DC V Meter	mV Meter
1.	530 kHz	T7	Pink	0.9 ± 0.1V	
			Colorless	1.0 ± 0.1V	
			Blue	1.1 ± 0.1V	
			White	1.2 ± 0.1V	
2.	1,620 kHz	For Confirmation Only	Less than 9V		
3. 600kHz (400Hz, 30% modulation) output level 30 dB (μV)	600 kHz	T4, T6			Maximum output
4. 1,400kHz(400Hz,30% modulation) output level 30 dB (μV)	1,400 kHz	TC1, TC2			Maximum output
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.					

3.18 AM SCAN SENSITIVITY CONFIRMATION (UKE-3100)

- **Connection Diagram (Shown in Fig. 25)**
- **To Check**

1. Set the Local.s switch to OFF.
2. Apply a signal of 1,000kHz, 400Hz 30% modulation and 27 dB ± 10 dB (μV), scan and confirm that scan stop at 1,000kHz.
3. Set the input signal from the AM SSG to 16 dB (μV), scan and confirm that scan does not stop.
4. Set the Local.s switch to ON, set the input signal from the AM SSG to 50 $^{+15dB}_{-10dB}$ (μV), scan and confirm that scan stop at 1,000kHz.

NOTICE:

Bass/Treble Unit

Replace the VOLUME section of the BASS/TREBLE UNIT as shown in the illustration. Solder P.C. board in order indicated by arrows. Ensure that VOLUME section is securely inserted into P.C. board as shown. P.C. board should not be tilted.

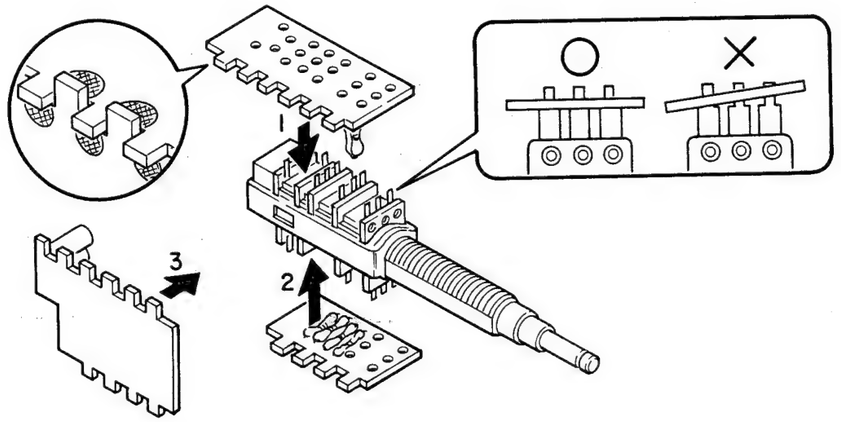
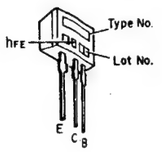


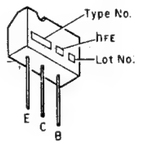
Fig. 26

- **IC's and Transistors**

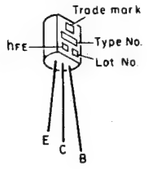
2SA1175
2SC2785
2SC2786
2SC2787



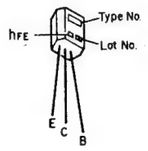
2SA673A
2SB822
2SC1545
2SC2021



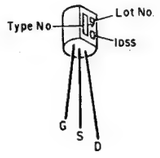
2SA720
2SC1318



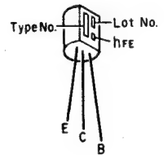
2SA1048
2SC2458



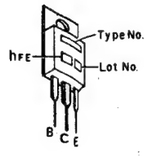
2SK49



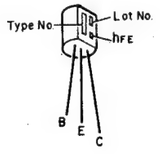
2SC536NP
2SC945
2SC1674
2SC1675
2SC1815



2SD1267

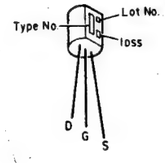


2SC2570



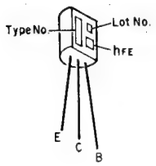
2SC536SP
2SC2840

2SK163

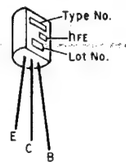


P001
SD306PA

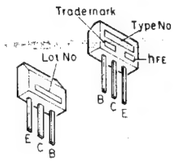
2SA1016



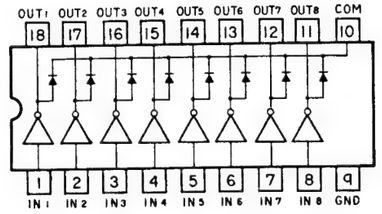
2SA872A
2SD468



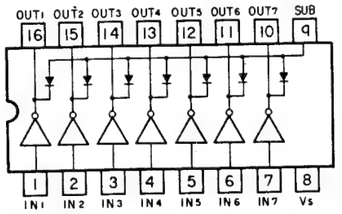
2SC1213



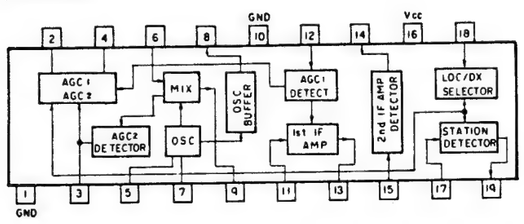
M54522P



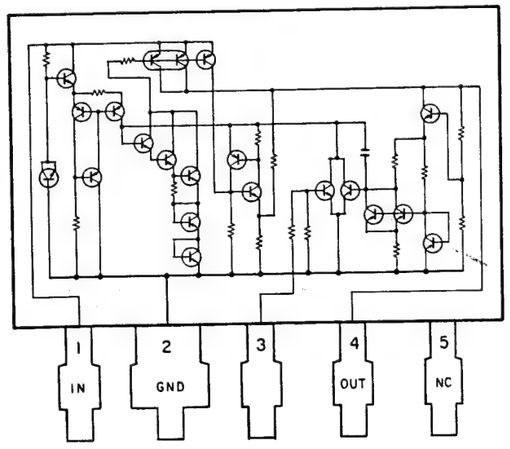
M54561P



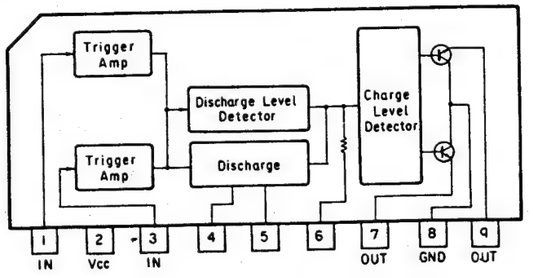
μPC1215V



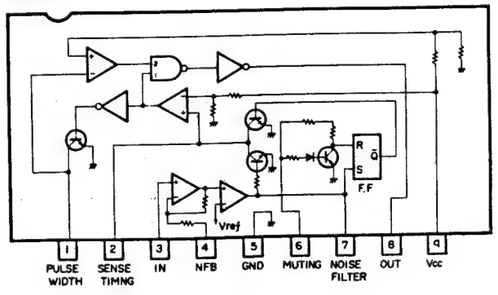
AN6540



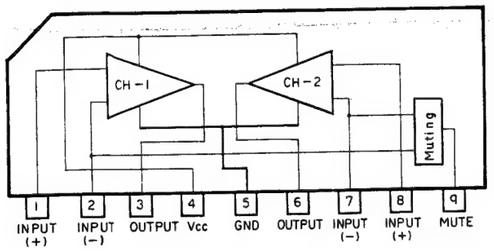
TA7324P



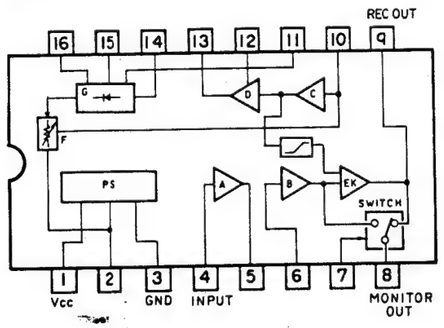
BA338



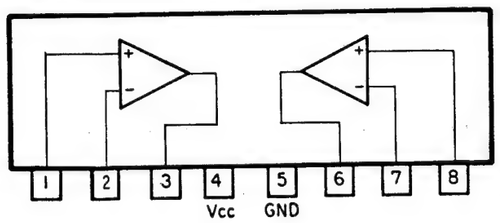
TA7325P



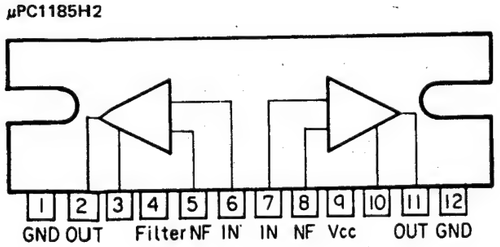
TA7629P



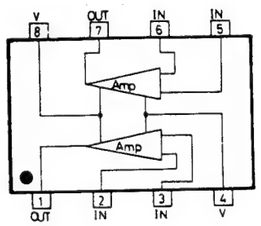
MB3106MF



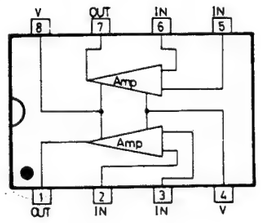
μPC1185H2



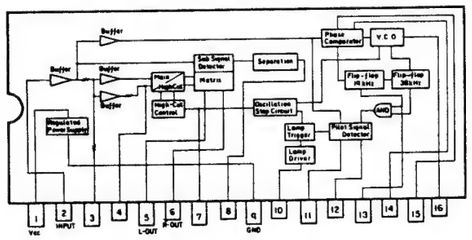
NJM4558D-D



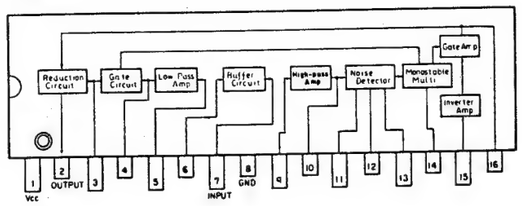
μPC4558C



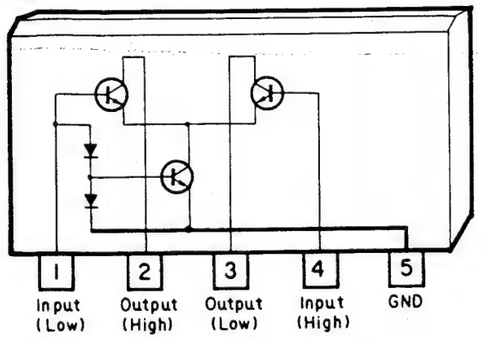
LA3370P



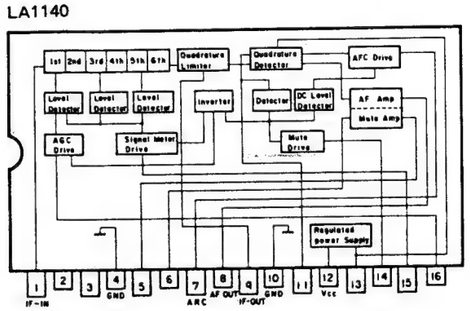
LA2110



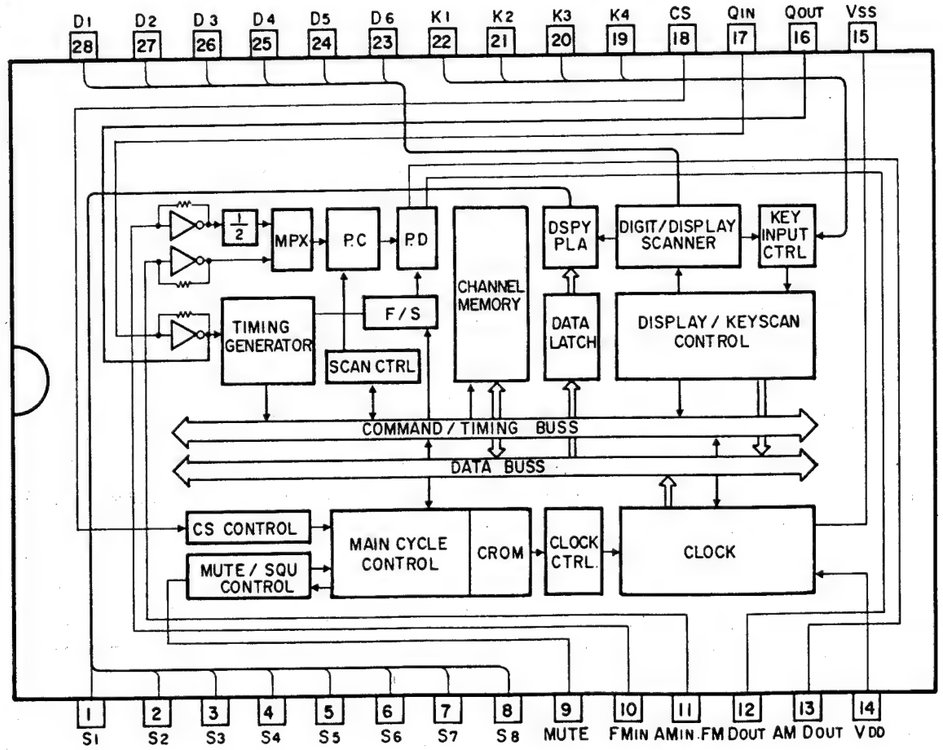
M5215L



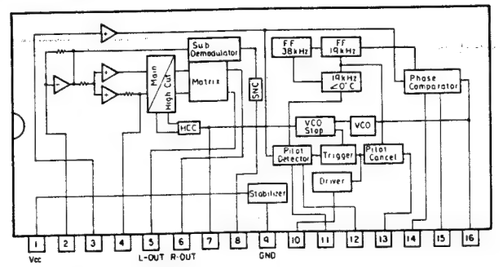
LA1140



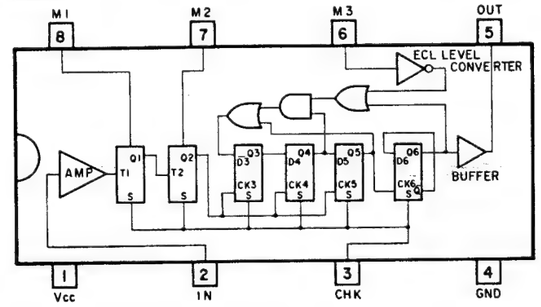
PD7003A
PD7003B



LA3375P



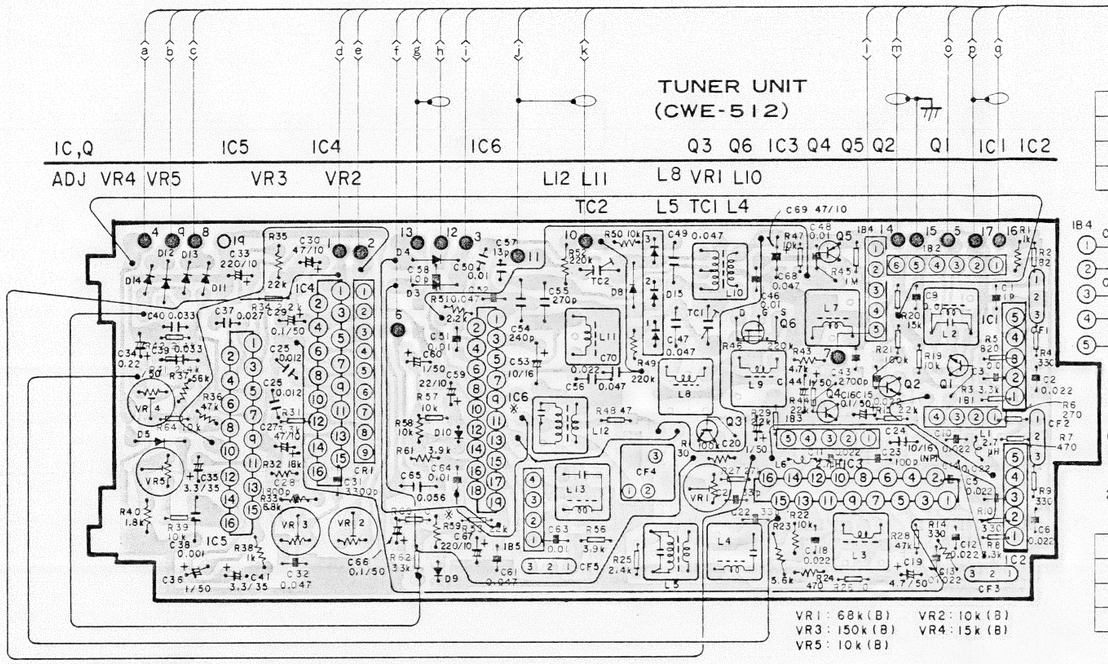
μPB552C



4. CONNECTION DIAGRAM (UKE-7100)

	10	11	12	13	14	15	17	19	20	21	22	23	24	25	26	27
IC1	2.2V	4.6V	1.8V	1.2V	5.3V	0V	2.4V	5.2V	5.2V	5.2V	2.8V	4.4V	4.4V	4.4V	4.4V	4.4V

TUNER UNIT (CWE-512)



	Q6
G	0.2V
D	8.2V
S	0.3V

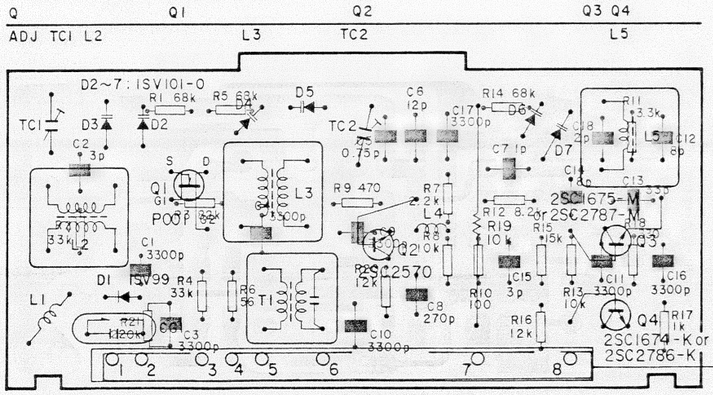
	Q1	Q2	Q3	Q4	Q5
E	1.7V	0V	0V	0V	8.2V
C	8.4V	0.7V	0V		
B	2.4V	0V	0.6V		8.1V

IC1, 2 : M5215L IC3 : LA1140 IC4 : LA2110 IC5 : LA3375P IC6 : μPC1215V
Q1, 4 : 2SC2786-K or 2SC2840-D Q2, 3 : 2SC2785-K or 2SC2458-BL Q5 : 2SA1016-F or 2SA872A-D
Q6 : 2SK163-M D3~5, 8, 9, 11 I4 : ISI555, IS2076, IS2473 or DS442 DI0 : MV-11 DI5 : KV1235

	1	2	3	4	5
IC1	1.4V	5.1V	8.6V	1.4V	0V
IC2	1.4V	7V	8.6V	1.4V	0V

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC3	2.6V	2.6V	2.6V	0V	2.1V	0.7V	5V	5.1V	5V	0V	5V	8.4V	5V	2.4V	0.4V	4.1V
IC4	8.6V	3.3V				4.2V		0V		3V	3V	2.4V	0.6V	0V	4.5V	4.5V
IC5		2.9V	3V		2.9V	2.9V			0V		2.4V	3.2V	1.2V	2.4V	2.4V	
IC6	0V	8.1V		0V	2.5V	1.4V	2.5V	5.5V	8.4V	0V	0.7V	1.8V		2.4V	6.9V	8.6V

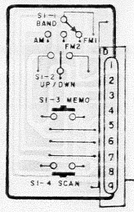
FRONT END (CWB-090)



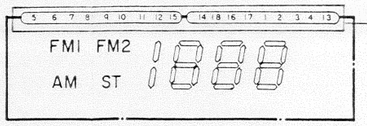
	Q1
G1	2.2V
G2	8.5V
D	7.3V
S	0V

	Q2	Q3
E		3.4V
C	8.6V	8.3V
B		4.1V

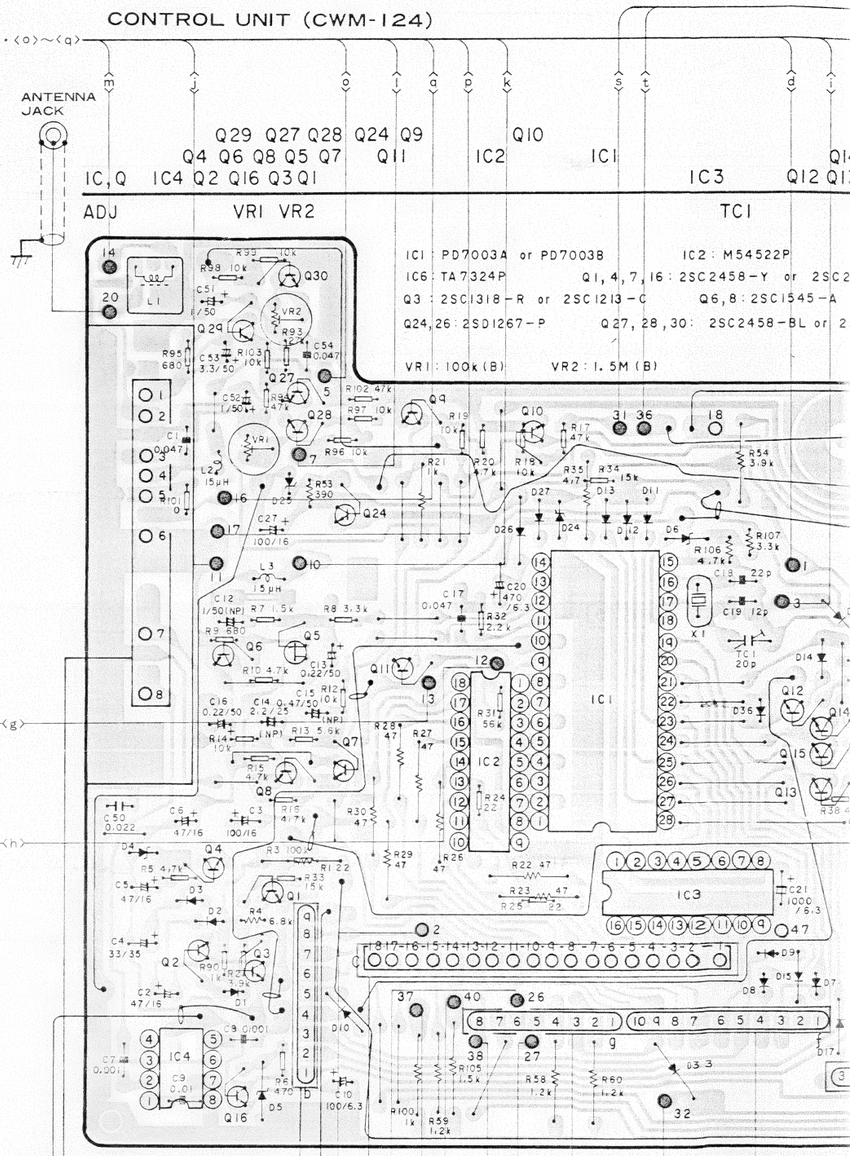
SWITCH UNIT (A)



DISPLAY (CXC-490)



CONTROL UNIT (CWM-124)



DI, 7~23, 26, 27, 30~33, 36 : ISI555, IS2473, US1040, DS442 or IS2076 D2
D6, 28 : WZ-032 D24 : XZ-051 D25 : XZ-064 D29 : WZ-085

	Q5
G	1.2V
D	11.3V
S	

	Q7	Q8	Q9	Q10	Q11
E		0V	0V	0V	
C	11.3V				8.7V
B	1.7V				

	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
E	4.4V	4.4V	4.4V	4.4V	3.3V	1.7V	1.7V	2.8V	2.3V	8.7V
C		2.8V	5.2V	2.8V	8.6V	7.4V	7.4V	7.4V	7.4V	8.6V
B						2.3V	2.3V	3.4V	3.4V	

	Q22	Q23	Q24	Q26	Q27	Q28	Q29
E	8.7V	0V	6V	0V	0V	0V	8.6V
C	8.6V						
B							

	I	3	4	6	7	8
IC4	3.3V	0V	0V	0V	3.3V	0V

	I	2	4
IC5	14.1V	0V	8.7V

	I	3	4
IC6	1.4V	1.4V	1.8V

	27	28
	4.4V	4.4V

	9
IC2	0V

	3	4	5	6	7	8	9
IC3	4.4V	4.4V	4.4V	4.4V	4.4V	5.7V	0V

	Q1~Q4
E	0V

	Q5
E	8.5V
C	14.1V(TAPE)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	1.2V	0.8V	3V	8.5V	0V	3V	0.8V	1.2V								
IC2	8.5V	4.3V	0V	4.1V	4.1V	4.3V	8.5V	4.2V		4.3V		4.2V		4.7V	4.8V	5.8V
IC3	8.5V	4.3V	0V	4.1V	4.1V	4.3V	8.5V	4.2V		4.3V		4.2V		4.7V	4.8V	5.8V
IC4				1.0V	0V				9.3V							

HEAD UNIT

S1: FWD/REV SWITCH

IC, Q Q4 Q3 IC4 IC3 IC2 Q5 Q2 Q1 IC1

ADJ VR1 VR2

IC1: MB3106MF
Q1~4: 2SC2458-Y, D1: 1S1555, 1S2076
IC2, 3: TA7629P
2SC2785-P or 2SC536SP-E, IS2473VH, DS442 or WG713
IC4: BA338
Q5: 2SD468-B
D2, 3: WZ-090
VR1, 2: 330 (B)

PRE DOLBY NR UNIT (CWK-267)

MAIN AMP UNIT (CWH-160)

IC1: μPC1185H2

FUSE 0.5A — BACK UP
TO AUTO ANTENNA
TO L-CH SPEAKER
TO R-CH SPEAKER
FUSE 2A — TO BATTERY

BASS/TREBLE UNIT (CWG-101)

IC1: NJM4558D-D or μPC4558C

S1: FF/REW SWITCH

MS SOLENOID — MOTOR — KEY OFF SOLENOID

SWITCH P.C. BOARD

S1: TUNER/TAPE SELECTOR SWITCH
S2: KEY OFF SWITCH

SWITCH UNIT (B) (CWS-123)

D1~7: BG4524K

S7 MS — S6 DOLBY NR — S5 70μs — S4 CLOCK — S3 MONO/AUTO — S2 LOCAL S — S1 LOUDNESS

Q14 Q15 Q18 Q20 Q19 Q17 Q22 Q23 IC6
Q12 Q13 Q21 IC5 Q25 Q26

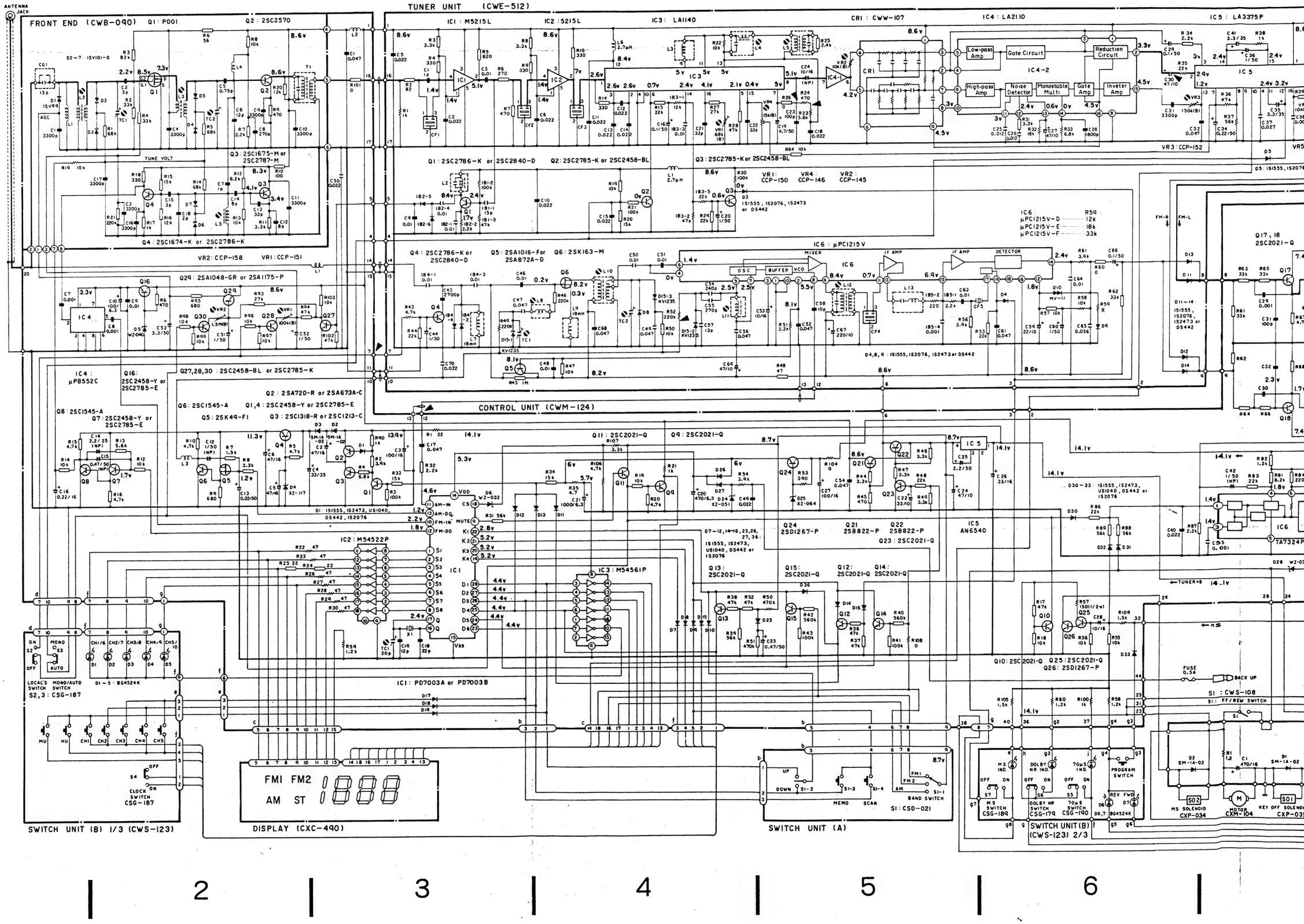
IC3: M54561P IC4: μPB552C IC5: AN6540
2SC2785-E Q2: 2SA720-R or 2SA673A-C Q5: 2SK49-FI
5-A Q9~15, 17~20, 23, 25: 2SC2021-Q Q21, 22: 2SB822-P
or 2SC2785-K Q24: 2SA1048-GR or 2SA1175-P

D2, 3, 34, 35: SM-1A-02 D4: XZ-117 D5: WZ-040
85

	4	5	6
	1.8V	0V	2.7V

Fig. 27

5. SCHEMATIC CIRCUIT DIAGRAM (UKE-7100)



NOTE :

— Indicates a chip resistor.

— Indicates a chip capacitor.

SWITCHES :

◉ BASS / TREBLE UNIT

S1 : TUNER SWITCH ..... ON – OFF

◉ HEAD UNIT

S1 : HEAD SELECTOR SWITCH ..... FWD – REV

◉ SWITCH P.C. BOARD

S1 : TUNER/TAPE SELECTOR SWITCH ..... TUNER – TAPE

S2 : KEY OFF SWITCH ..... ON – OFF

◉ SWITCH UNIT (A)

S1 : BAND SWITCH ..... FM1 – FM2 – AM

◉ SWITCH UNIT (B)

S1 : LOUDNESS SWITCH ..... ON – OFF

S2 : LOCAL S SWITCH ..... ON – OFF

S3 : MONO / AUTO SWITCH ..... MONO – AUTO

S4 : CLOCK SWITCH ..... ON – OFF

S5 : 70μS SWITCH ..... ON – OFF

S6 : DOLBY NR SWITCH ..... ON – OFF

S7 : MS SWITCH ..... ON – OFF

◉ MISCELLANEOUS

S1 : FF / REW SWITCH ON – OFF

The underlined indicates the switch position.

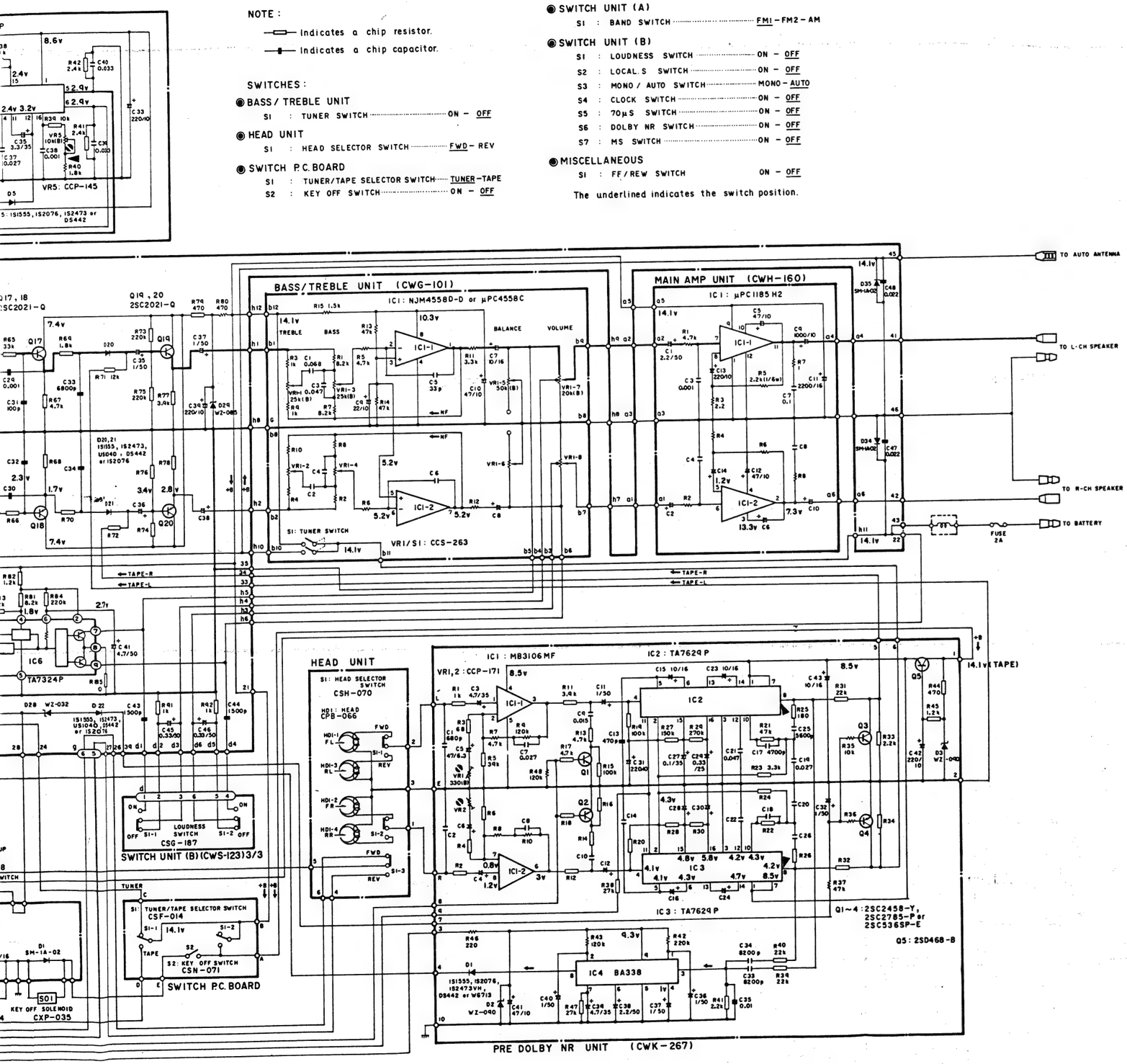
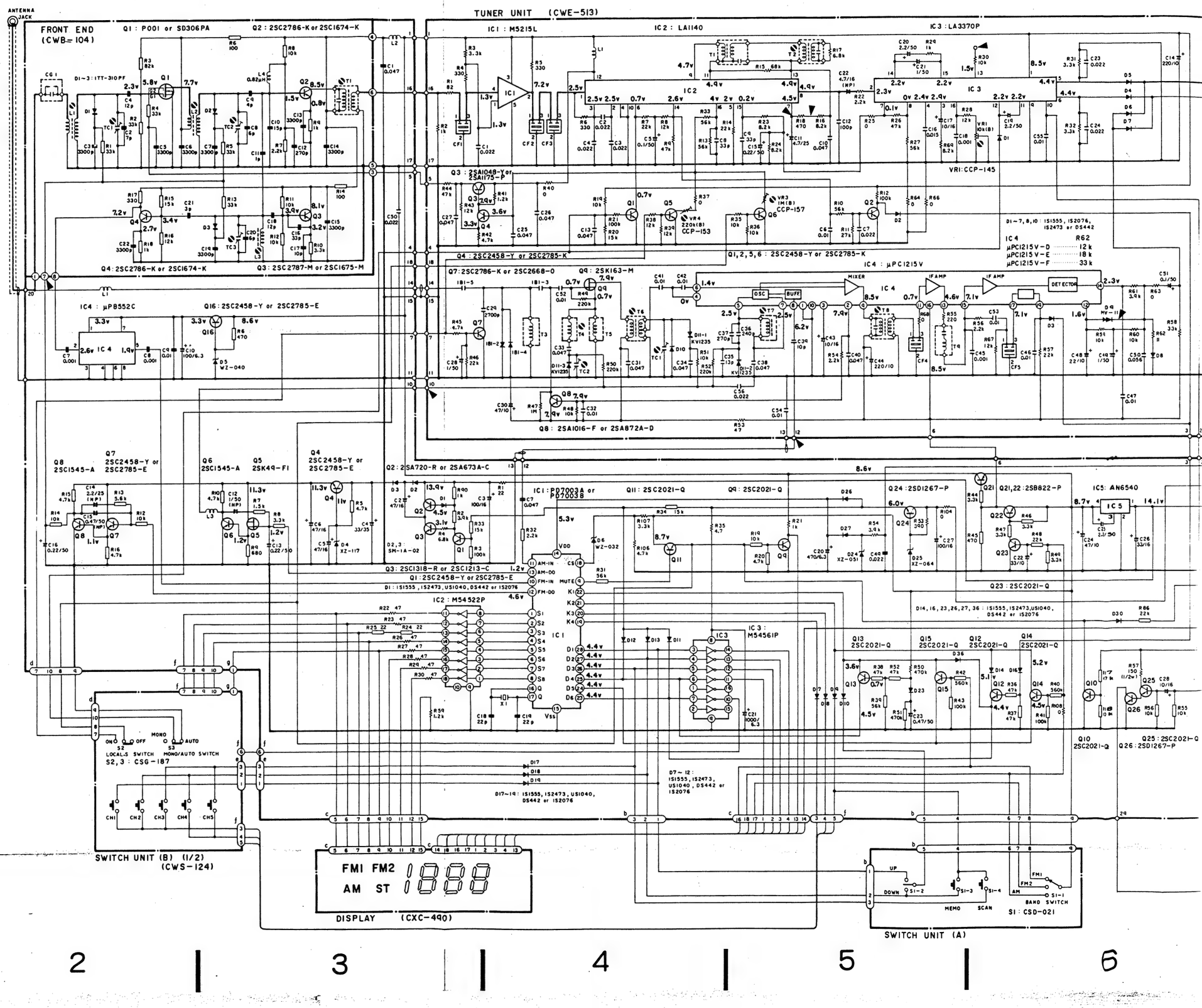


Fig. 28

6. SCHEMATIC CIRCUIT DIAGRAM(UKE-3100)



NOTE :

Indicates a chip resistor.

Indicates a chip capacitor.

SWITCHES :

● TONE UNIT

S1 : TUNER SWITCH ..... ON – OFF

● SWITCH P.C.BOARD

S1 : TUNER/TAPE SELECTOR SWITCH ..... TUNER – TAPE

S2 : KEY OFF SWITCH ..... ON – OFF

● SWITCH UNIT (A)

S1 : BAND SWITCH ..... FM1 – FM2 – AM

● SWITCH UNIT (B)

S1 : LOUDNESS SWITCH ..... ON – OFF

S2 : LOCAL.S SWITCH ..... ON – OFF

S3 : MONO / AUTO SWITCH ..... MONO – AUTO

S4 : MS SWITCH ..... ON – OFF

● MISCELLANEOUS

S1 : FF / REW SWITCH ..... ON – OFF

The underlined indicates the switch position.

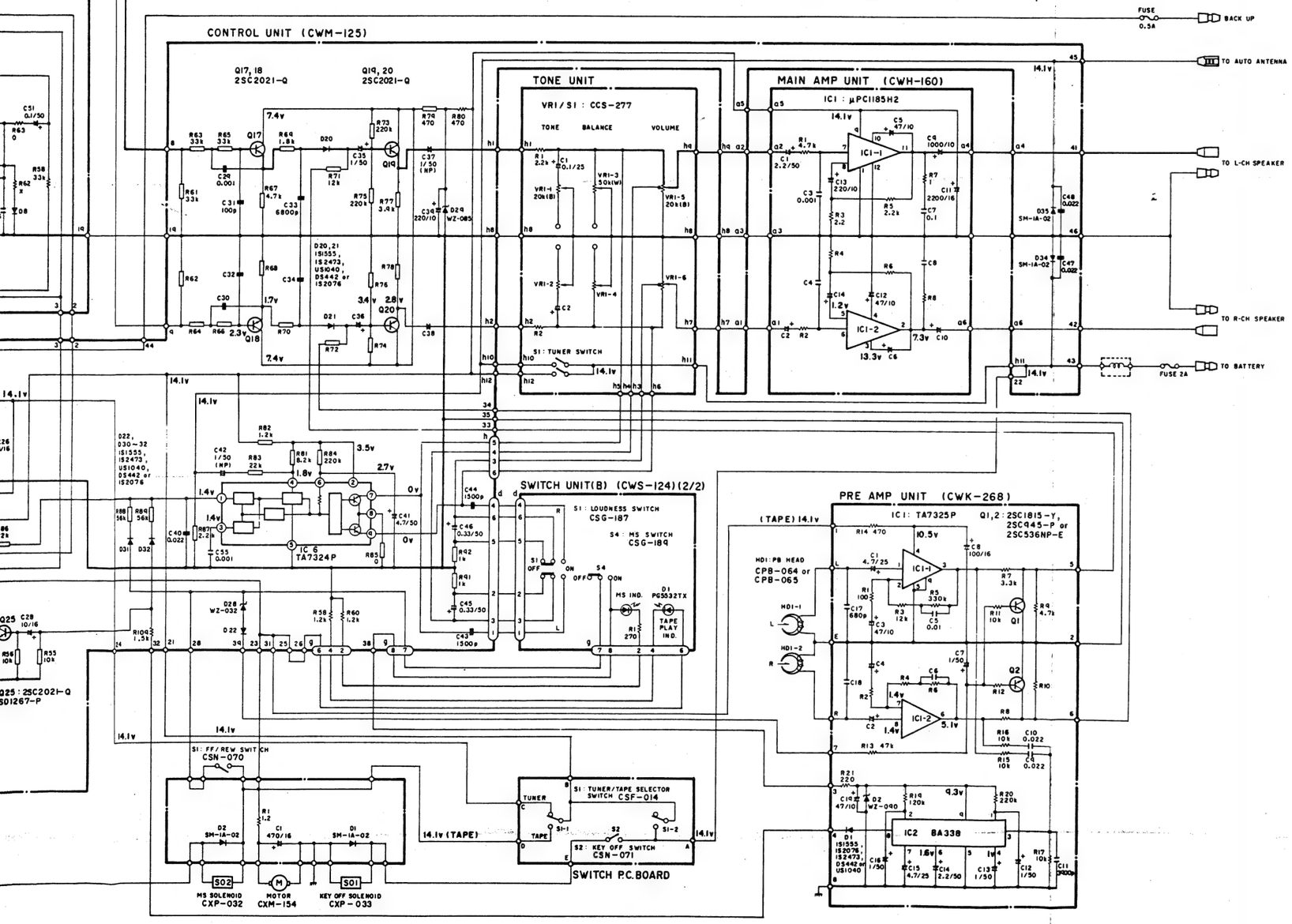
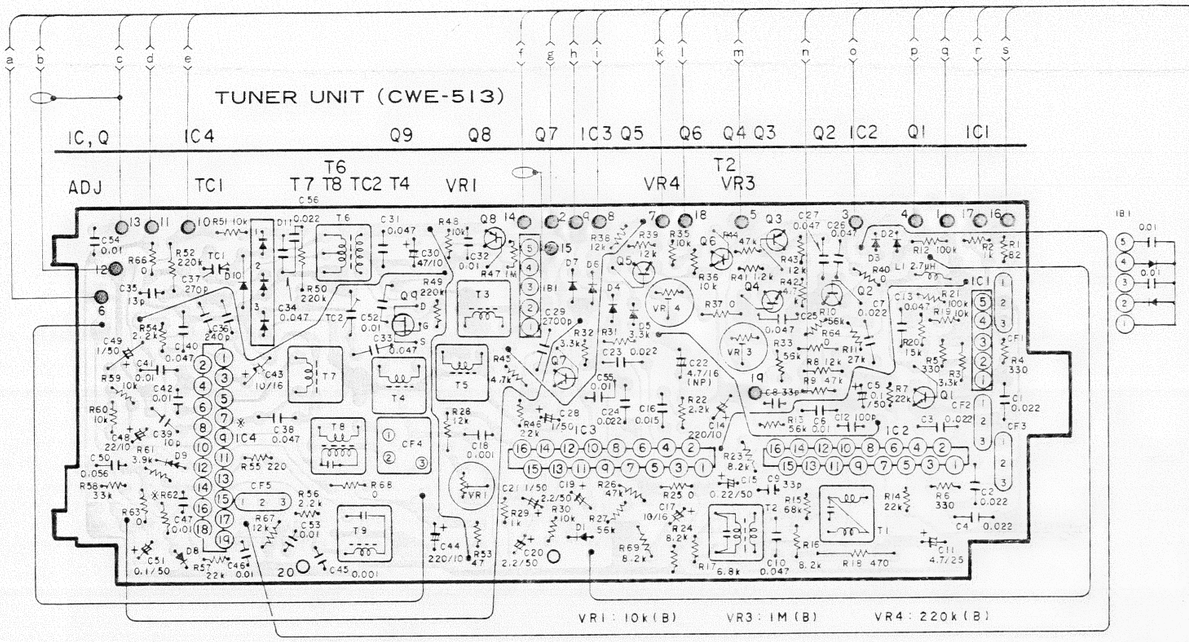


Fig.29

7. CONNECTION DIAGRAM (UKE-3100)



IC1 : M5215L IC2 : LA1140 IC3 : LA3370P IC4 : μPC1215V
Q1, 2, 4 ~ 6 : 2SC2458 – Y or 2SC2785 – K Q3 : 2SA1048 – Y or 2SA1175 – P Q7 : 2SC2786 – K or 2SC2668 – O
Q8 : 2SA1016 – F or 2SA872A – D Q9 : 2SK163 – M
D1 ~ 7, 8, 10 : 1S1555, 1S2076, 1S2473 or DS442 D9 : MV – 11 D11 : KV1235

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC1	1.3V	7.2V	8.5V	1.3V	0V											
IC2	2.5V	2.5V	2.5V	0V	2V	0.7V	4.5V	4.9V	4.7V	0V	4.9V		4.9V	2.6V	0.2V	4V
IC3	8.5V	2.3V	2.9V	2.4V	4.4V	4.4V	0.1V	0V	0V		2.2V	2.2V	1.5V	2.2V	2.2V	
IC4	0V	7.9V		0V	2.5V	1.4V	2.5V	6.2V	8.5V	0V	0.7V	1.6V	4.6V	2.3V	7.1V	8.5V

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
E	0V	0V		3.3V	0V	0V	0V	7.9V
C	0.7V			7.9V				
B			7.9V	3.6V				7.9V

	Q9
G	0.7V
D	7.9V
S	0.7V

	Q1	Q2	Q3	Q4	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
E	0V	13.9V	0V	11.3V	0V	1.1V	0V	0V	0V		4.4V	4.5V	4.5V
C						11.3V				8.7V	5.1V	3.6V	5.2V
B		4.5V	3.1V	1.1V	1.2V		1.1V					0.7V	

	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q26
E	4.5V	3.3V	1.7V	1.7V	2.8V	2.8V	8.7V	8.7V	0V	6.0V	0V
C	3.6V	8.6V	7.4V	7.4V	7.4V	7.4V	8.6V	8.5V			
B			2.3V	2.3V	3.4V	3.4V					

	Q5
G	1.2V
D	11.3V
S	1.2V

	12	13	14	15	21	22	23	24	25	26	27	28
IC1	4.6V	1.2V	5.3V	0V	5.2V	3.6V	4.4V	4.4V	4.4V	4.4V	4.4V	4.4V

ANTENNA JACK

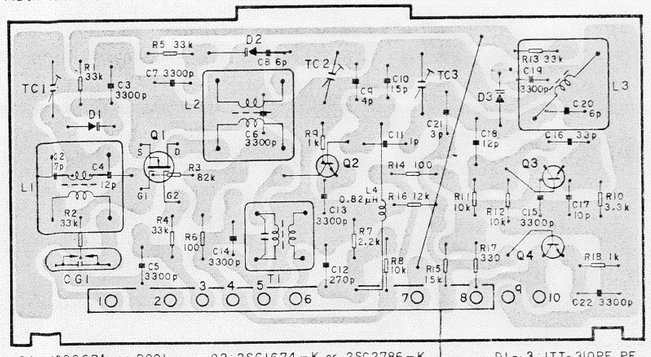
IC1 : PD7003A or PD7003B IC2 : M54522P IC3 : M5456IP
IC6 : TA7324P Q1, 4, 7, 16 : 2SC2458 – Y or 2SC2785 – E Q2 : 2SA
Q3 : 2SC1318 – R or 2SC1213 – C Q6, 8 : 2SC1545 – A Q9 ~ 15, 17 ~
Q21, 22 : 2SB822 – P Q24, 26 : 2SD1267 – P

D1, 7 ~ 14, 16 ~ 23, 26, 27, 30 ~ 32, 36 : 1S1555, 1S2473, USI040, DS442 or 1S2076 D2, 3, 34, 35 : SM
D6, 28 : WZ – 032 D24 : XZ – 051 D25 : XZ – 064 D29 : WZ – 085

	9
IC2	0V

	3								
IC3	4.4V	4.4V	4.4V	4.4V	4.4V	0V			
IC4	3.3V	2.6V	0V	0V	1.9V	0V	3.3V	0V	
IC5	14.1V	0V	8.7						

FRONT END (CWB-104)

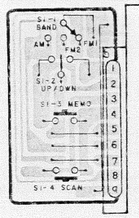


Q1 : SD306PA or P001 Q2 : 2SC1674 – K or 2SC2786 – K D1 ~ 3 : ITT – 310PE, PF
Q3 : 2SC1675 – M or 2SC2787 – M Q4 : 2SC1674 – K or 2SC2786 – K

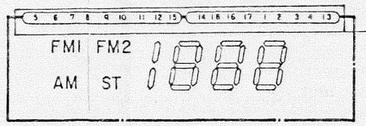
	Q1
G1	2.3V
G2	5.8V
D	7.7V
S	0V

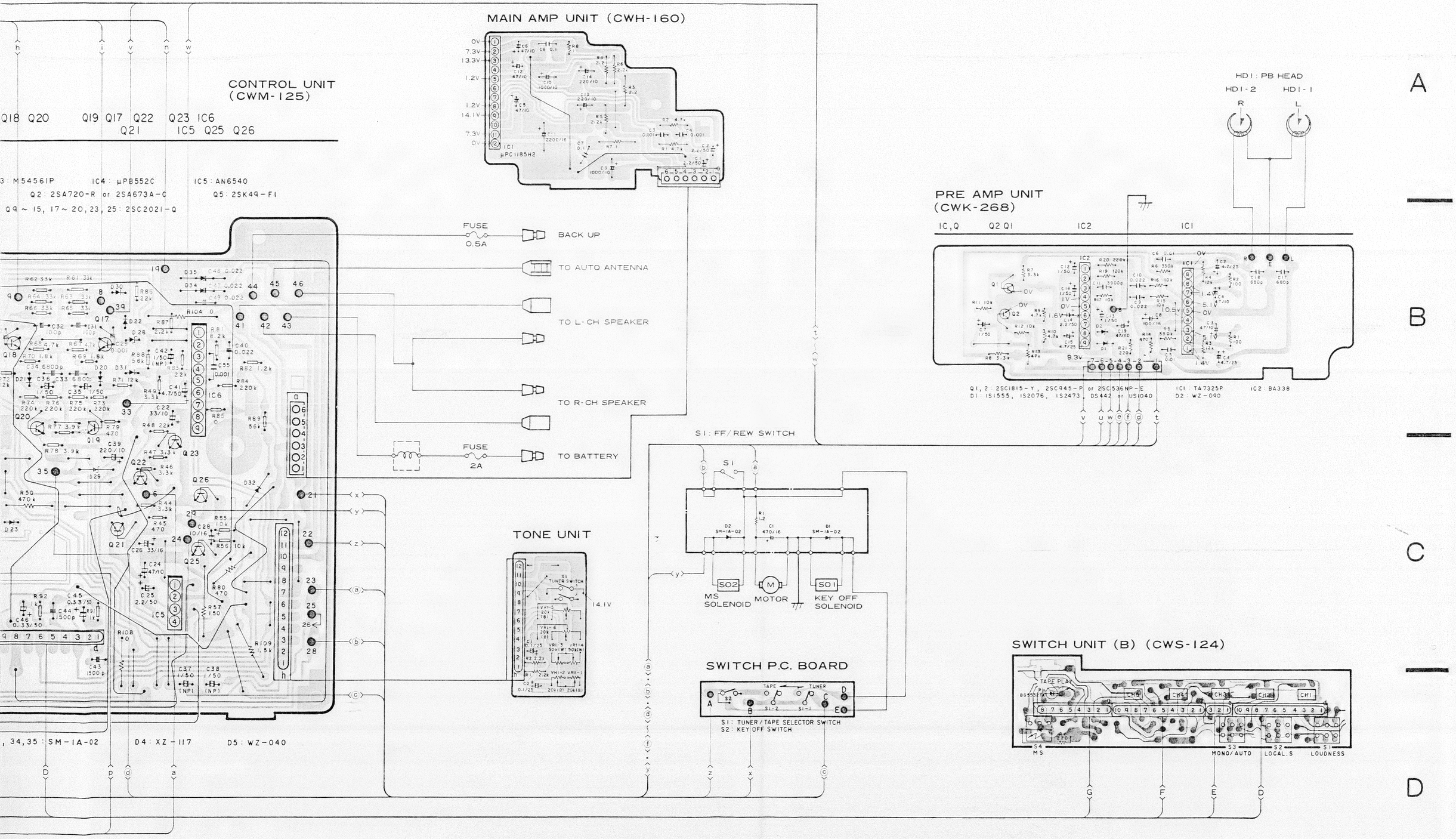
	Q2	Q3	Q4
E	0.8V	3.2V	2.7V
C	8.5V	8.1V	7.2V
B	1.5V	3.9V	3.4V

SWITCH UNIT (A)



DISPLAY (CXC-490)





	1	2	4
	14.1V	0V	8.7V

	1	2	3	4	5	6	7	9
IC6	1.4V	3.5V	1.4V	1.8V	0V	2.7V	0V	0V

Fig. 30

8. CASSETTE MECHANISM EXPLODED VIEW (UKE-7100)

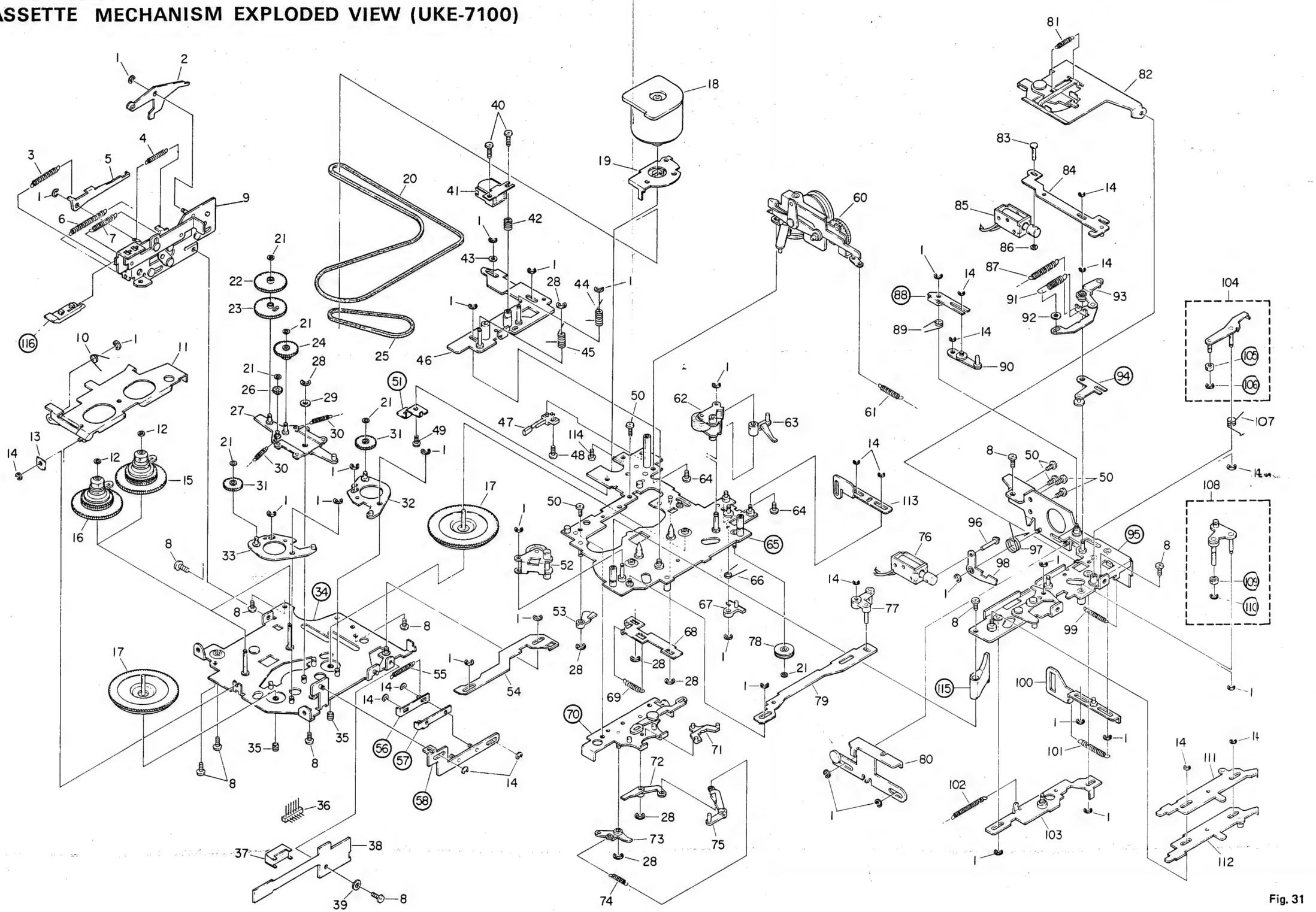


Fig. 31

- **Parts List**

NOTE

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ : GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Mark	No.	Part No.	Description
	1.	YE20FUC	Washer
	2.	CNE-972	Arm
	3.	CBH-626	Spring
	4.	CBH-625	Spring
	5.	CXC-463	Arm Unit
	6.	CBH-628	Spring
	7.	CBH-627	Spring
	8.	CBA-097	Spring
	9.	CXC-465	Side Frame Unit
	10.	CBH-662	Spring
	11.	CXC-239	Holder Unit
	12.	CBF-045	Washer
	13.	CNF-019	Holder
	14.	YE15FUC	Washer
★★	15.	CXC-178	Reel Unit
★★	16.	CXC-177	Reel Unit
	17.	CNR-138	Flywheel
★★	18.	CXM-104	Motor
	19.	CNF-040	Spacer
★★	20.	CNT-091	Belt
	21.	CBF-126	Washer
	22.	CNW-169	Gear
	23.	CNW-170	Gear
	24.	CNW-168	Gear
★★	25.	CNT-092	Belt
	26.	CNW-260	Gear
	27.	CXC-316	Arm Unit
	28.	YE25FUC	Washer
	29.	CBE-104	Washer
	30.	CBH-611	Spring
	31.	CNW-167	Gear
	32.	CXC-219	Arm Unit
	33.	CXC-217	Arm Unit
	34.		Holder Unit
	35.	CNW-229	Screw
	36.	CKS-070	Plug
★★	37.	CSH-070	Switch (FWD/REV)
	38.	CNP-925	P.C. Board
	39.	WB02FMC	Washer
	40.	PMS20P060FMC	Screw
★★	41.	CPB-066	Head
	42.	CBH-198	Spring
	43.	CNF-091	Washer
	44.	CBH-614	Spring
	45.	CBH-613	Spring

Mark	No.	Part No.	Description
	46.	CXC-215	Head Base Unit
★★	47.	CWS-108	Switch Unit (FF/REW)
	48.	BMZ20P025FMC	Screw
	49.	PMS26P040FMC	Screw
	50.	CBA-098	Screw
	51.		Bracket
★★	52.	CXC-180	Roller Unit
	53.	CNW-190	Arm
	54.	CNE-938	Cam
	55.	CBH-612	Spring
	56.		Lever
	57.		Lever
	58.		Lever Unit
	59.	VACANT	
	60.	CXC-242	Gear Unit
	61.	CBH-624	Spring
★★	62.	CXC-179	Roller Unit
	63.	CNW-197	Arm
	64.	BMZ23P040FMC	Screw
	65.		Chassis Unit
	66.	CBH-621	Spring
	67.	CNW-230	Holder
	68.	CNE-975	Lever
	69.	CBH-609	Spring
	70.		Holder
	71.	CNW-325	Arm
	72.	CNW-192	Arm
	73.	CNW-189	Arm
	74.	CBH-610	Spring
	75.	CNW-191	Arm
★	76.	CXP-035	Solenoid
	77.	CXC-222	Arm Unit
	78.	CLB-052	Pulley
	79.	CNE-931	Cam
	80.	CXC-238	Lever Unit
	81.	CBH-634	Spring
	82.	CXC-244	Holder Unit
	83.	CLB-122	Shaft
	84.	CXC-233	Lever Unit
★	85.	CXP-034	Solenoid
	86.	HBF-145	Washer
	87.	CBH-618	Spring
	88.		Arm
	89.	CBH-623	Spring
	90.	CXC-236	Lever Unit

Mark	No.	Part No.	Description
	91.	CBH-615	Spring
	92.	WA33F060M050	Washer
	93.	CXC-232	Arm Unit
	94.		Arm Unit
	95.		Sub Chassis Unit
	96.	CLB-139	Shaft
	97.	CBH-633	Spring
	98.	CXC-231	Arm Unit
	99.	CBH-663	Spring
	100.	CXC-482	Lever Unit
	101.	CBH-617	Spring
	102.	CBH-619	Spring
	103.	CXC-237	Cam Unit
	104.	CXC-229	Arm Unit
	105.		Roller

Mark	No.	Part No.	Description
	106.		Washer
	107.	CBH-622	Spring
	108.	CXC-230	Arm Unit
	109.		Roller
	110.		Washer
	111.	CXC-227	Lever Unit
	112.	CXC-228	Lever Unit
	113.	CNE-939	Lever
	114.	PMS26P030FMC	Screw
	115.		Guide
	116.		Guide

9. CASSETTE MECHANISM EXPLODED VIEW (UKE-3100)

- **Parts List**

Mark	No.	Part No.	Description
★★	1.	CXM-154	Motor
	2.	CBH-628	Spring
	3.	YE20FUC	Washer
	4.	CBH-626	Spring
	5.	CXC-463	Arm Unit
	6.	CBH-627	Spring
	7.	CBH-625	Spring
	8.	CNE-972	Arm
	9.	BMZ23P030FMC	Screw
	10.		Frame Unit
★★	11.	CNT-096	Belt
	12.	CNW-205	Pulley
	13.		Holder
	14.	CBF-135	Washer
	15.	YE15FUC	Washer
	16.	CXC-302	Holder Unit
	17.	CBH-640	Spring
	18.	YE25FUC	Washer
	19.		Lever
	20.	BMZ20P040FMC	Screw
	21.	CXC-328	Gear Unit
	22.	CNW-206	Gear
	23.		Spacer
	24.	CBH-638	Spring
★★	25.	CXC-289	Roller Unit
	26.		Roller
	27.	PMS26P040FUC	Screw
	28.	CNW-210	Gear
	29.		Chassis Unit
	30.	CBH-635	Spring

Mark	No.	Part No.	Description
	31.	CBH-636	Spring
	32.	CNW-211	Gear
	33.	CNW-212	Gear
	34.	CNW-216	Gear
	35.	CBF-045	Washer
★★	36.	CXC-256	Reel Unit
★★	37.	CXC-257	Reel Unit
	38.	CNR-148	Flywheel
★★	39.	CNT-095	Belt
	40.	CXC-290	Holder Unit
	41.	CMZ23P030FMC	Screw
	42.	CNW-229	Screw
	43.	CNW-250	Arm
	44.	BMZ20P080FMC	Screw
★★	45.	CPB-064 or CPB-065	Head
	46.	CNV-301	Rubber
	47.	CBH-198	Spring
	48.	CNL-010 or CNL-011	P.C. Board
	49.		Plug
★★	50.	CSN-070	Switch (FF/REW)
	51.		P.C. Board
	52.	BMZ20P030FMC	Screw
	53.	CBH-648	Spring
	54.	CXC-296	Arm Unit
★	55.	CXP-033	Solenoid
★	56.	CXP-032	Solenoid
	57.		Lever Unit
	58.		Lever Unit

Mark	No.	Part No.	Description
	59.	CBH-645	Spring
	60.	CBH-634	Spring
	61.	CXC-301	Holder Unit
	62.		Lever Unit
	63.	CBH-655	Spring
	64.		Lever Unit
	65.		Arm
	66.	CBH-641	Spring
	67.	CXC-509	Arm Unit
	68.	PMZ26P160FMC	Screw
	69.		Lever
	70.	CXC-459	Arm Unit
	71.	CMZ26P040FMC	Screw
	72.	CBH-642	Spring
	73.	CBH-677	Spring
	74.	BMZ20P025FMC	Screw
	75.	CBH-679	Spring
	76.		Lever
	77.	CBH-649	Spring
	78.	BMZ26P100FMC	Screw
	79.		Lever
	80.		Lever
	81.	CXC-297	Arm Unit
	82.	CBH-647	Spring
	83.	CBH-637	Spring
	84.	CXC-456	Sub Chassis Unit
	85.	CXC-254	Gear Unit
	86.		Guide
	87.	CBH-678	Spring
	88.		Bracket
	89.		Arm Unit
	90.	CBH-660	Spring
	91.	CBF-046	Washer
	92.		Guide
	93.	CBH-675	Spring
	94.		Arm Unit
	95.		Arm Unit
	96.	BMZ26P040FMC	Screw

• Cassette Mechanism (UKE-3100)

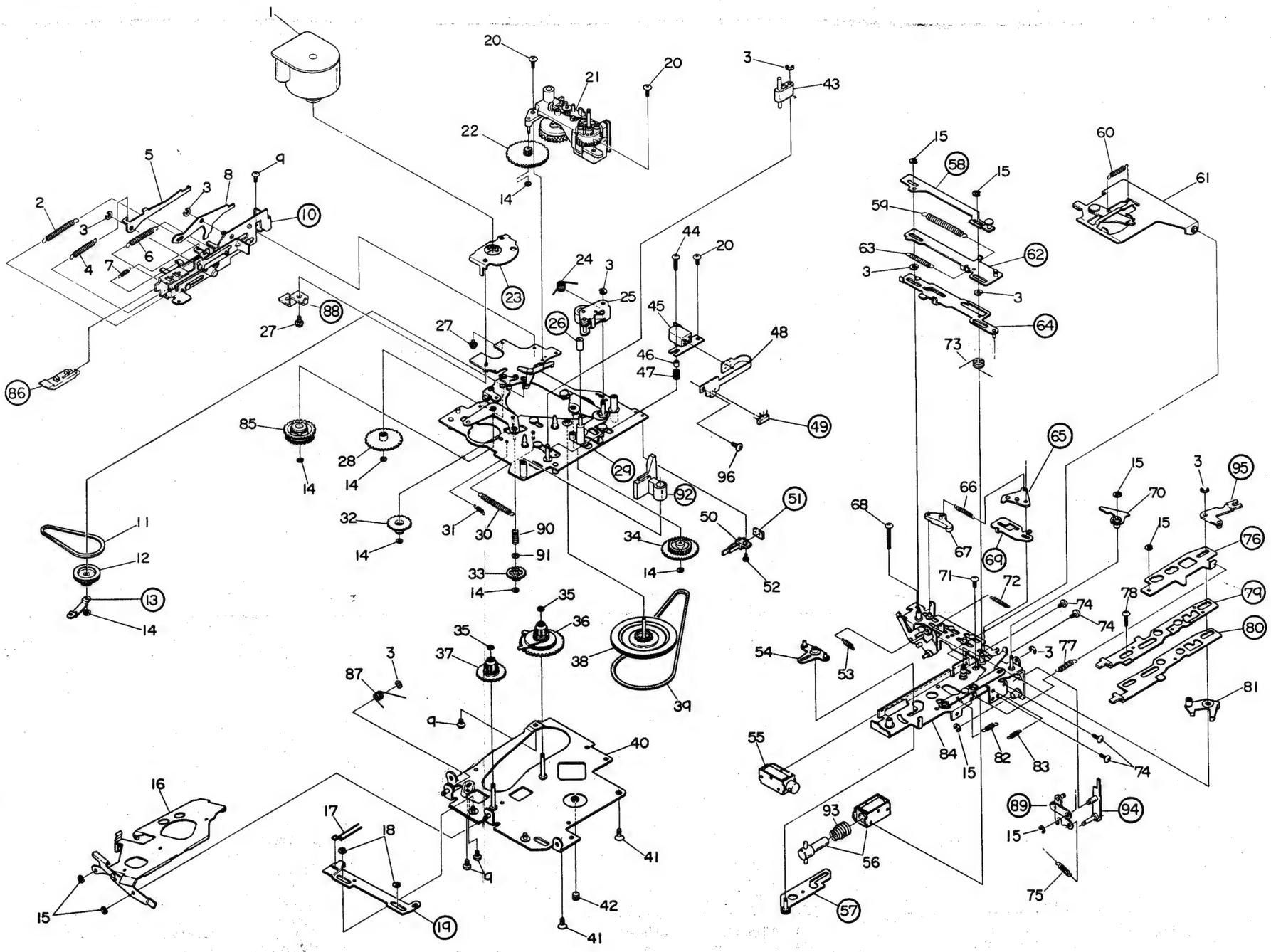


Fig. 32

10. CABINET EXPLODED VIEW

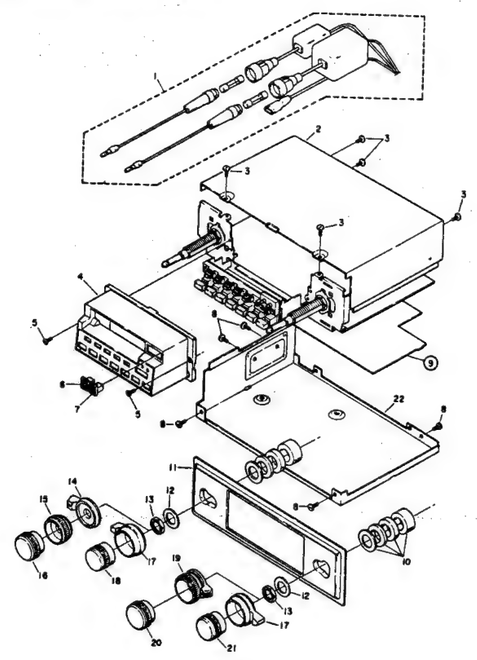


Fig. 33

- **Parts List**

Mark	No.	Part No.	Description
	1.	CDF-039	Cord
	2.	CXC-517	Case Unit
	3.	BMZ26P030FMC	Screw
	4.	CXC-521	Grille Unit (UKE-7100)
		CXC-522	Grille Unit (UKE-3100)
	5.	CMZ26P050FMC	Screw
★	6.	CAC-432	Button
★	7.	CAC-433	Button
	8.	BMZ26P040FMC	Screw
	9.		Insulator
	10.	CNV-769	Washer
	11.	CEA-599	Panel (UKE-7100)
		CEA-600	Panel (UKE-3100)
	12.	CND-646	Spacer
	13.	CBN-028	Nut
★	14.	CAA-377	Knob (Bass) (UKE-7100)
★	15.	CAA-376	Knob (Treble) (UKE-7100)
★	16.	CAA-375	Knob (Volume) (UKE-7100)
★	17.	CAA-387	Knob (Tone) (UKE-3100)
★	18.	CAA-379	Knob (Volume) (UKE-3100)
★	19.	CAA-378	Knob (Band) (UKE-7100)
★	20.	CAA-386	Knob (Tuning) (UKE-7100)
★	21.	CAA-385	Knob (Tuning) (UKE-3100)
	22.	CNB-665	Case

11. CHASSIS EXPLODED VIEW

- **Parts List**

Mark	No.	Part No.	Description
	1.	BMZ26P060FMC	Screw
	2.		Bracket (UKE-7100)
			Bracket (UKE-3100)
	3.	PMS26P040FMC	Screw
	4.	CBH-680	Spring
	5.	YE15FUC	Washer
	6.		Arm
	7.	CNP-926	P.C. Board
	8.	CBA-106	Screw
	9.	BMZ23P025FMC	Screw

Mark	No.	Part No.	Description
★★	10.	CSF-014	Switch (Power)
	11.		Cover
	12.	BMZ20P040FMC	Screw
★★	13.	CSN-071	Switch (Key Off)
	14.		Bracket Unit
	15.	CXC-495	Cassette Mechanism Assy (UKE-7100)
		CXC-499	Cassette Mechanism Assy (UKE-3100)
	16.	BMZ26P040FMC	Screw
	17.		Insulator
★	18.	BG4524K	LED (UKE-7100)
	19.	BMN20P040FMC	Screw
★	20.	BG4524K	LED (UKE-7100)
★		PG5532TX	LED (UKE-3100)
	21.		Rubber (UKE-7100)
			Rubber (UKE-3100)
★	22.	CAC-430	Button (UKE-7100)
★	23.	CAC-429	Button
★	24.	CAC-399	Button (UKE-7100)
	25.	BMZ20P080FMC	Screw
	26.	CNW-348	Housing (UKE-7100)
		CNW-349	Housing (UKE-3100)
★★	27.	CSG-187	Switch (Loud, Loc.s, Mono)
★★	28.	CSG-187	Switch (Clock) (UKE-7100)
★★	29.	CSG-190	Switch (70μs) (UKE-7100)
★★	30.	CSG-179	Switch (NR) (UKE-7100)
★★	31.	CSG-189	Switch (MS)
★	32.	CAC-401	Button (Loud, Loc.s, Mono)
★	33.	CAC-401	Button (Clock) (UKE-7100)
★	34.	CAC-400	Button (70μs, NR) (UKE-7100)
★	35.	CAC-400	Button (MS)
	36.		Cassette Mechanism Unit
	37.		Bracket
	38.		Cover (UKE-3100)
	39.	BMZ23P025FMC	Screw (UKE-3100)
	40.	BMZ26P060FMC	Screw
★	41.	CXC-490	Display
	42.	CAT-128	Door (UKE-7100)
		CAT-129	Door (UKE-3100)
	43.	CBH-683	Spring
	44.	CNM-788	Cushion
	45.	BMZ20P030FMC	Screw
	46.		Shield
	47.		Holder
	48.	BTN20P060FMC	Screw
	49.		P.C. Board
	50.	CDF-048	Connector (3P)
	51.	CDF-043	Connector (10P)
	52.	CDF-047	Connector (8P)
	53.	CWS-123	Switch Unit (B) (UKE-7100)
		CWS-124	Switch Unit (B) (UKE-3100)
	54.		Heat Sink Unit
	55.	BMZ26P080FMC	Screw
★★	56.	μPC1185H2	IC
	57.		Holder
	58.	CWH-160	Main Amp Unit
	59.	CDF-041	Connector (6P) (UKE-7100)
	60.		Connector
	61.		Insulator
	62.	CNL-148	P.C. Board (UKE-3100)
	63.	CDF-045	Connector
★★	64.	CCS-277	Volume/Switch (UKE-3100)
★★	65.	CCS-263	Volume/Switch (UKE-7100)
	66.	CWG-101	Bass/Treble Unit (UKE-7100)
	67.	CBE-084	Spacer
	68.		Holder
	69.	CBN-028	Nut
	70.	CWE-512	Tuner Unit (UKE-7100)
		CWE-513	Tuner Unit (UKE-3100)
	71.		Insulator
	72.	CDF-040	Cord
	73.	CDH-074	Antenna Cable
	74.	WH26FNi	Washer
	75.	BMZ26P050FNi	Screw
★★	76.	CSD-021	Switch (Band, Tuning)
	77.	CNL-149	P.C. Board
	78.	CDF-044	Connector (9P)
	79.		Frame
	80.	CDF-046	Connector (7P)
	81.	CKS-227	Connector (7P)
	82.	CDF-042	Connector (3P) (UKE-3100)
	83.		Holder
	84.	BMZ30P060FMC	Screw
★★	85.	2SD1267	Transistor
★★	86.	AN6540	Transistor
★★	87.	CNM-558	Insulator
	88.		Heat Sink
	89.	CKS-226	Plug (6P)
	90.	CNF-404	Shield
	91.	CWK-267	Pre Dolby NR Unit (UKE-7100)
		CWK-268	Pre Amp Unit (UKE-3100)
	92.	CNM-792	Insulator
	93.		Holder
	94.		Case
	95.	CKS-190	Plug (3P) (UKE-3100)
	96.	CKS-191	Plug (6P) (UKE-3100)
	97.	CKS-151	Plug (8P) (UKE-7100)
	98.		Case
	99.	CWB-090	Front End (UKE-7100)
		CWB-104	Front End (UKE-3100)
	100.		Heat Sink
	101.	CWM-124	Control Unit (UKE-7100)
		CWM-125	Control Unit (UKE-3100)
	102.	CXC-520	Shield Unit
	103.	CXC-518	Shield Unit

- **Chassis**

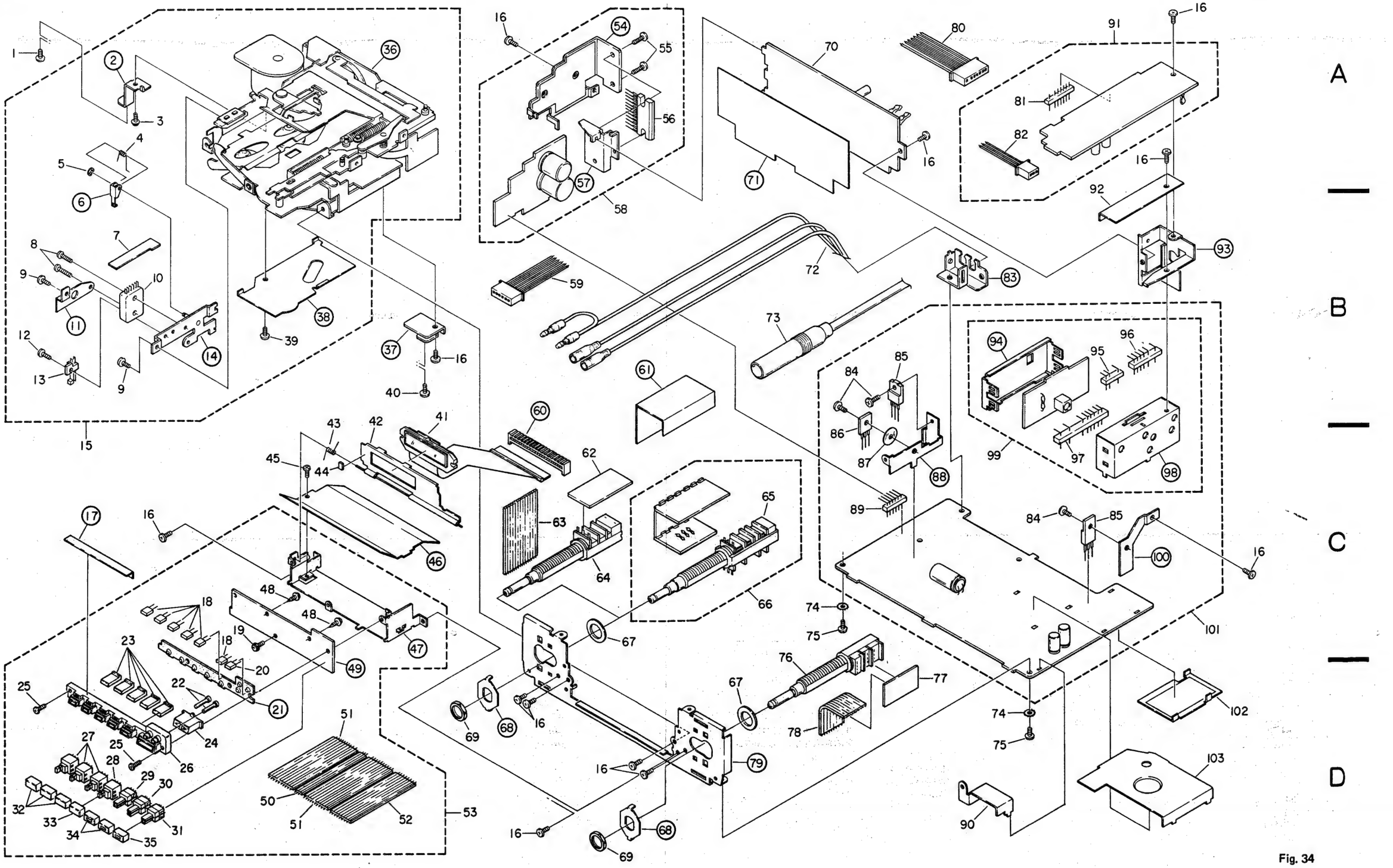


Fig. 34

12. ELECTRICAL PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10^1*	*561. . . . . .RD1/4PS 5 6 1 J*
47kΩ	*47 × 10^3*	*473. . . . . .RD1/4PS 4 7 3 J*
0.5Ω	*0R5*	*. . . . . .RN2H 0 R 5 K*
1Ω	*010*	*. . . . . .RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10^1 . . . . . .RN1/4SR 5 6 2 1 F

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★*
  ★ ★: GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Control Unit (CWM-124) (UKE-7100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description
★★	PD7003A or PD7003B	IC1
★★	M54522P	IC2
★★	M54561P	IC3
★★	μPB552C	IC4
★★	AN6540	IC5
★★	TA7324P	IC6
★★	2SC2458 or 2SC2785	Q1, Q4, Q7, Q16, Q27, Q28, Q30
★★	2SA720 or 2SA673A	Q2
★★	2SC1318 or 2SC1213	Q3
★★	2SK49-F1	Q5
★★	2SC1545	Q6, Q8
★★	2SC2021	Q9–Q15, Q17–Q20, Q23, Q25
★★	2SB822	Q21, Q22
★★	2SD1267	Q24, Q26
★★	2SA1048-GR or 2SA1175-P	Q29
★	1S1555 or 1S2473 or US1040 or DS442 or 1S2076	D1, D7–D23, D26, D27, D30–D33, D36
★	SM-1A-02	D2, D3, D34, D35
★	XZ-117	D4
★	WZ-040	D5
★	WZ-032	D6, D28
★	XZ-051	D24
★	XZ-064	D25
★	WZ-085	D29
	CTB-115	L1 Coil
	CTF-016 or CTF-078 or CTF-079	L2, L3 Ferri-Inductor, 15μH
	CCG-070	TC1 Trimmer
	CSS-021 or CSS-022	X1 Quartz Oscillator
★★	CCP-151	VR1 Semi-fixed, 100kΩ(B)
★★	CCP-158	VR2 Semi-fixed, 1.5MΩ(B)
	CWB-090	Front End

RESISTORS

Mark	Part No.	Symbol & Description
	RD1/4PM □□□ J	R1, R21–R23, R26–R30, R35, R50, R54, R58–R60, R80, R100, R104, R105, R108, R109
	RS1/8S □□□ J	R2, R3, R5–R10, R12–R20, R24, R25, R31–R34, R36–R49, R51, R52, R55, R56, R61–R79, R81–R99, R101–R103 Chip Resistor
	RD1/4VM □□□ J	R4, R53
	RD1/2PS □□□ J	R57
	RD1/6PS □□□ J	R106, R107
	VACANT	R11

CAPACITORS

Mark	Part No.	Symbol & Description
	CKSYF473Z50	C1, C17, C54 Chip Capacitor
	CEA470M16LL	C2, C5, C6
	CEA101M16L	C3, C27
	CCH-089	C4 33μF/35V
	CKSYB102K50	C7, C8, C29, C30 Chip Capacitor
	CKSYB103K50	C9 Chip Capacitor
	CEA101M6R3L	C10
	VACANT	C11
	CEA010M50NP	C12, C42
	CEAR22M50LL	C13
	CEA2R2M25NP	C14
	CEAR47M50NP	C15
	CEA0R1M50LL	C16
	CCSCH220J50	C18 Chip Capacitor
	CCSCH120J50	C19 Chip Capacitor
	CCH-059	C20 470μF/6.3V
	CEA102M6R3L	C21
	CEA330M10LL	C22
	CEAR47M50LL	C23
	CEA470M10LL	C24
	CEA2R2M50LL	C25
	CEA330M16LL	C26
	CEA100M16LL	C28
	CCSSL101J50	C31, C32 Chip Capacitor
	CKSYB682K50	C33, C34 Chip Capacitor
	CEA010M50LL	C35–C38, C51, C52
	CCH-085	C39 220μF/10V
	CKSYB223K25	C40, C47–C49 Chip Capacitor
	CEA4R7M50LL	C41
	CKSYB152K50	C43, C44 Chip Capacitor
	CEAR33M50LL	C45, C46
	CQMA223K50L	C50
	CEA3R3M50LL	C53
	CKDYB102K50L	C55

Control Unit (CWM-125) (UKE-3100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description
★★	PD7003A or PD7003B	IC1
★★	M54522P	IC2
★★	M54561P	IC3
★★	μPB552C	IC4
★★	AN6540	IC5
★★	TA7324P	IC6
★★	2SC2458 or 2SC2785	Q1, Q4, Q7, Q16
★★	2SA720 or 2SA673A	Q2
★★	2SC1318 or 2SC1213	Q3
★★	2SK49-F1	Q5
★★	2SC1545	Q6, Q8
★★	2SC2021	Q9–Q15, Q17–Q20, Q23, Q25
★★	2SB822	Q21, Q22
★★	2SD1267	Q24, Q26
★	1S1555 or 1S2473 or US1040 or DS442 or 1S2076	D1, D7–D14, D16–D23, D26, D27, D30–D32, D36
★	SM-1A-02	D2, D3, D34, D35
★	XZ-117	D4
★	WZ-040	D5
★	WZ-032	D6, D28
	VACANT	D15, D33
★	XZ-051	D24
★	XZ-064	D25
★	WZ-085	D29
	CTB-115	L1 Coil
	CTF-016 or CTF-078 or CTF-079	L2, L3 Ferri-Inductor, 15μH
	CSS-021 or CSS-022	X1 Quartz Oscillator
	CWB-104	Front End

RESISTORS

Mark	Part No.	Symbol & Description
	RD1/4PM □□□ J	R1, R21–R23, R26–R30, R35, R50, R54, R58–R60, R80, R104, R108, R109
	RS1/8S □□□ J	R2, R3, R5–R10, R12–R20, R24, R25, R31–R34, R36–R49, R51, R52, R55, R56, R61–R79, R81–R92 Chip Resistor
	RD1/4VM □□□ J	R4, R53
	RD1/2PS □□□ J	R57
	RD1/6PS □□□ J	R106, R107
	VACANT	R11, R93–R103, R105

CAPACITORS

Mark	Part No.	Symbol & Description
	CKSYF473Z50	C1, C17 Chip Capacitor
	CEA470M16LL	C2, C5, C6
	CEA101M16L	C3, C27
	CCH-089	C4 33μF/35V
	CKSYB102K50	C7, C8, C29, C30 Chip Capacitor
	CKSYB103K50	C9 Chip Capacitor
	CEA101M6R3L	C10
	VACANT	C11
	CEA010M50NP	C12, C37, C38, C42
	CEAR22M50LL	C13, C16

Mark	Part No.	Symbol & Description	
	CEA2R2M25NP	C14	
	CEAR47M50NP	C15	
	CCSCH220J50	C18, C19	Chip Capacitor
	CCH-059	C20	470μF/6.3V
	CEA102M6R3L	C21	
	CEA330M10LL	C22	
	CEAR47M50LL	C23	
	CEA470M10LL	C24	
	CEA2R2M50LL	C25	
	CEA330M16LL	C26	
	CEA100M16LL	C28	
	CCSSL101J50	C31, C32	Chip Capacitor
	CKSYB682K50	C33, C34	Chip Capacitor
	CEA010M50LL	C35, C36	
	CCH-085	C39	220μF/10V
	CKSYB223K25	C40, C47–C49	Chip Capacitor
	CEA4R7M50LL	C41	
	CKSYB152K50	C43, C44	Chip Capacitor
	CEAR33M50LL	C45, C46	
	CQMA223K50L	C50	
	VACANT	C51–C54	
	CKDYB102K50L	C55	

Front End (CWB-090) (UKE-7100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description	
★★	P001	Q1	
★★	2SC2570	Q2	
★★	2SC1675-M or 2SC2787-M	Q3	
★★	2SC1674 or 2SC2786	Q4	
★	1SV99	D1	
★	1SV101	D2–D7	
	CTC-129	L1	Coil
	CTC-126	L2	Coil
	CTC-127	L3	Coil
	CTC-130	L4	Coil
	CTC-128	L5	Coil
	CTC-125	T1	IF Transformer
	CCG-069	TC1, TC2	Trimmer, 10pF
	CCL-068	CG1	Capacitor (with discharge gap)

RESISTORS

Mark	Part No.	Symbol & Description	
	RS1/8S □□□ J	R1–R18, R20, R21	Chip Resistor
	RD1/4PM □□□ J	R19	

CHIP CAPACITORS

Mark	Part No.	Symbol & Description
	CKSYB332K50	C1, C3, C4, C9–C11, C16, C17
	CCSCH030C50	C2
	CCSCHR75C50	C5
	CCSTH120J50	C6
	CCSCH010C50	C7
	CCSCH271J50	C8
	CCSTH080D50	C12, C14
	CCSTH330J50	C13
	CCSTH030C50	C15
	CCSUJ020C50	C18

Front End (CWB-104) (UKE-3100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description	
★★	P001 or SD306PA	Q1	
★★	2SC2786 or 2SC1674	Q2, Q4	
★★	2SC2787-M or 2SC1675-M	Q3	
★	ITT-310PF or ITT-310PE	D1–D3	
	CTC-113	L1	Coil
	CTC-116	L2	Coil
	CTC-114	L3	Coil
	CTF-015	L4	Ferri-Inductor, 0.82μH
	CTC-117	T1	IF Transformer
	CCG-038	TC1–TC3	Trimmer
	CCL-068	CG1	Capacitor (with discharge gap)

CHIP RESISTORS

Mark	Part No.	Symbol & Description
	RS1/8S □□□ J	R1–R18

CHIP CAPACITORS

Mark	Part No.	Symbol & Description
	VACANT	C1
	CCSSH070D50	C2
	CKSYB332K50	C3, C5–C7, C13–C15, C19, C22
	CCSSH120J50	C4
	CCSSH060C50	C8
	CCSCH040C50	C9
	CCSSH150J50	C10
	CCSCH010C50	C11
	CCSCH271J50	C12
	CCSSH330J50	C16
	CCSTH100D50	C17
	CCSTH120J50	C18
	CCSTH060C50	C20
	CCSTH030C50	C21

Tuner Unit (CWE-512) (UKE-7100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description	
★★	M5215L	IC1, IC2	
★★	LA1140	IC3	
★★	LA2110	IC4	
★★	LA3375P	IC5	
★★	μPC1215V	*IC6	
★★	2SC2786 or 2SC2840	Q1, Q4	
★★	2SC2785 or 2SC2458	Q2, Q3	
★★	2SA1016 or 2SA872A	Q5	
★★	2SK163	Q6	
	VACANT	D1, D2, D6, D7	
★	1S1555 or 1S2076 or 1S2473 or DS442	D3–D5, D8, D9, D11–D14	
★	MV-11	D10	
★	KV1235	D15	
	CTF-155	L1, L6	Ferri-Inductor, 2.7μH
	CTC-138	L2	Coil
	CTC-144	L3	Coil
	CTC-132	L4	Coil
	CTC-133	L5	Coil
	CTC-057	L7, L9	Coil
	CTB-096	L8, L10	Coil
	CTB-097	L11	Coil
	CTE-092	L12	IF Transformer
	CTE-115	L13	IF Transformer
	CTF-101	CF1–CF3	Ceramic Filter
	CTF-100	CF4	Filter
	CTF-129	CF5	Ceramic Filter
	CCG-070	TC1, TC2	Trimmer
	CWW-107	CR1	
	CWW-088	IB1	Inline Block
	CWW-134	IB2	Inline Block
	CWW-135	IB3	Inline Block
	CWW-090	IB4	Inline Block
	CWW-091	IB5	Inline Block
★★	CCP-150	VR1	Semi-fixed, 68kΩ(B)
★★	CCP-145	VR2, VR5	Semi-fixed, 10kΩ(B)
★★	CCP-152	VR3	Semi-fixed, 150kΩ(B)
★★	CCP-146	VR4	Semi-fixed, 15kΩ(B)

RESISTORS

Mark	Part No.	Symbol & Description
	RD1/4VM □□□ J	R1, R14, R22, R30, R32, R33, R36–R38, R43, R49–R51, R58, *R59, R61
	RS1/8S □□□ J	R2–R10, R15, R19–R21, R25–R29, R31, R34, R39, R41, R42, R44–R48, R53, R56, R57, R60, R62, R64 Chip Resistor
	RD1/4PM □□□ J	R23, R24, R35, R40, R52
	VACANT	R11–R13, R16–R18, R54, R55, R63

CAPACITORS

Mark	Part No.	Symbol & Description	
	CCSSL010C50	C1	Chip Capacitor
	CKSYB223K25	C2, C5, C6, C10–C15, C18	Chip Capacitor
	CKSYB103K50	C3, C9, C46, C48, C51, C63, C64	Chip Capacitor
	VACANT	C4, C7, C8, C17	
	CEA0R1M50LL	C16, C29, C66	
	CEA4R7M50LL	C19	
	CEA010M50LL	C20, C36, C60	
	CCSSL330J50	C21, C22	Chip Capacitor
	CCSSL101J50	C23	Chip Capacitor
	CEA100M16NP	C24	
	CQMA123J50L	C25, C26	
	CEA470M10L	C27, C30	
	CKSYB182K50	C28	Chip Capacitor
	CKSYB332K50	C31	Chip Capacitor
	CKSYF473Z50	C32, C52, C61, C68	Chip Capacitor
	CCH-085	C33, C67	220μF/10V
	CEAR22M50LL	C34	
	CEA3R3M35LL	C35, C41	
	CQMA273J50L	C37	
	CQSAH102J50	C38	
	CQMA333J50L	C39, C40	
	VACANT	C42, C45	
	CKSYB272K50	C43	Chip Capacitor
	CEAH010M50L	C44	
	CKDBC473K25	C47, C49, C56	
	CKDBC103K25	C50	
	CEAH100M16L	C53	
	CCDSH241J50L	C54	
	CCDSH271J50L	C55	
	CCDUJ130J50L	C57	
	CCSSH100D50	C58	Chip Capacitor
	CEA220M10L	C59	
	VACANT	C62	
	CQMA563J50L	C65	
	CEA470M10LL	C69	
	CKDBC223M25	C70	

Caution:

IC *IC6 and resistor *R59 used mutually in the following assembly.

IC6	R59
μPC1215V-D	RD1/4VM123J
μPC1215V-E	RD1/4VM183J
μPC1215V-F	RD1/4VM333J

Tuner Unit (CWE-513) (UKE-3100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description	
★★	M5215L	IC1	
★★	LA1140	IC2	
★★	LA3370P	IC3	
★★	μPC1215V	*IC4	
★★	2SC2458 or 2SC2785	Q1, Q2, Q4–Q6	
★★	2SA1048 or 2SA1175	Q3	
★★	2SC2786 or 2SC2668	Q7	
★★	2SA1016 or 2SA872A	Q8	
★★	2SK163	Q9	
★	1S1555 or 1S2076 or 1S2473 or DS442	D1–D8, D10	
★	MV-11	D9	
★	KV1235	D11	
	CTF-155	L1	Ferri-Inductor, 2.7μH
	CTC-122	T1	Coil
	CTC-123	T2	Coil
	CTC-057 or CTC-058	T3, T5	Coil
	CTB-096	T4, T6	Coil
	CTB-097	T7	Coil
	CTE-092	T8	IF Transformer
	CTE-115	T9	IF Transformer
	CTF-101	CF1–CF3	Ceramic Filter
	CTF-100	CF4	Filter
	CTF-129	CF5	Ceramic Filter
	CCG-070	TC1, TC2	Trimmer
	CWW-090	IB1	Inline Block
★★	CCP-145	VR1	Semi-fixed, 10kΩ(B)
	VACANT	VR2	
★★	CCP-157	VR3	Semi-fixed, 1MΩ(B)
★★	CCP-153	VR4	Semi-fixed, 220kΩ(B)

RESISTORS

Mark	Part No.	Symbol & Description
	RD1/4VM □□□ J	R1–R17, R19–R24, R26–R29, R31–R33, R35, R36, R38, R39, R41–R61, *R62, R67, R69
	RD1/4PM □□□ J	R18, R30
	RD1/4VM0R0J	R25, R37, R40, R63, R64, R66, R68 0Ω
	VACANT	R34, R65

CAPACITORS

Mark	Part No.	Symbol & Description
	CKDBC223M25	C1–C4, C7, C56
	CEA0R1M50LL	C5
	CKDBC103M25	C6, C32, C41, C42, C46, C47, C52–C55
	CCDSL330K50L	C8, C9
	CKDBC473M25	C10, C13, C25–C27, C31, C33, C34, C38, C40
	CEA4R7M25L	C11
	CKDYB101K50L	C12
	CEA221M10L	C14, C44
	CEAR22M50LL	C15
	CQMA153J50	C16
	CEA100M16L	C17
	CQSAH102J50	C18
	CEA2R2M50L	C19, C20
	CEA010M50L	C21
	CEA4R7M16NP	C22
	CQMA223J50	C23, C24
	CEA010M50LL	C28
	CKDYB272K50L	C29
	CEA470M10L	C30
	CCDXK130J50L	C35
	CCDVK241J50L	C36
	CCDVK271J50L	C37
	CCDCH100J50L	C39
	CEAH100M16L	C43
	CKDYB102K50L	C45
	CEA220M10L	C48
	CEAH010M50L	C49
	CKDBC563M25	C50
	CEA0R1M50LL	C51

Caution:

IC *IC4 and resistor *R62 used mutually in the following assembly.

IC4	R62
μPC1215V-D	RD1/4VM123J
μPC1215V-E	RD1/4VM183J
μPC1215V-F	RD1/4VM333J

Main Amp Unit (CWH-160)

Mark	Part No.	Symbol & Description	
★★	μPC1185H2	IC1	
	RD1/6PS □□□ J	R1–R6	
	RD1/4PM □□□ J	R7	
	RD1/4VM □□□ J	R8	
	CEA2R2M50LL	C1, C2	
	CKDYB102K50L	C3, C4	
	CEA470M10L	C5, C6, C12	
	CQMA104K50L	C7, C8	
	CCH-057	C9	1000μF/10V
	CCH-046	C10	1000μF/10V
	CCH-058	C11	2200μF/16V
	CCH-085	C13, C14	220μF/10V

Switch Unit (B) (CWS-123) (UKE-7100)

Mark	Part No.	Symbol & Description	
★	BG4524K	D1–D7	LED
★★	CSG-187	S1–S4	Switch (Loud, Loc.s, Mono, Clock)
★★	CSG-190	S5	Switch (70μs)
★★	CSG-179	S6	Switch (Dolby NR)
★★	CSG-189	S7	Switch (M.S)

Switch Unit (B) (CWS-124) (UKE-3100)

Mark	Part No.	Symbol & Description	
★	PG5532TX	D1	LED
★★	CSG-187	S1–S3	Switch (Loud, Loc.s, Mono)
★★	CSG-189	S4	Switch (M.S)
	RD1/6PS271J	R1	

Pre Dolby NR Unit (CWK-267) (UKE-7100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description
★★	MB3106MF	IC1
★★	TA7629P	IC2, IC3
★★	BA338	IC4
★★	2SC2458 or 2SC2785 or 2SC536SP	Q1–Q4
★★	2SD468	Q5
★	1S1555 or 1S2076 or 1S2473VH or DS442 or WG713	D1
★	WZ-090	D2, D3
★★	CCP-171	VR1, VR2 Semi-fixed, 330Ω(B)

RESISTORS

Mark	Part No.	Symbol & Description
	RS1/8S □□□ J	R1–R6, R11–R34, R38–R41, R44, R45, R47 Chip Resistor
	RD1/6PS □□□ J	R7–R10
	RD1/4VM □□□ J	R35–R37, R42, R43, R46, R48

CAPACITORS

Mark	Part No.	Symbol & Description	
	CKDYB681K50L	C1, C2	
	CEANL4R7M35LL	C3, C4	
	CEA470M6R3LL	C5, C6	
	CQMA273J50L	C7, C8, C19, C20	
	CQMA153J50L	C9, C10	
	CEANL010M50L	C11, C12	
	CKSYB471K50	C13	Chip Capacitor
	CKDYB471K50L	C14	
	CEA100M16LL	C15, C16, C23, C24, C43	
	CQMA472J50L	C17, C18	
	CQMA473J50L	C21, C22	
	CQMA562J50L	C25, C26	
	CSZA0R1M35	C27, C28	
	CSZAR33M25	C29, C30	
	CCH-085	C31, C42	220μF/10V
	CEA010M50LL	C32, C36, C37, C40	
	CQMA822J50L	C33, C34	
	CKSYB103K50	C35	Chip Capacitor
	CEA2R2M50LL	C38	
	CEA4R7M35LL	C39	
	CEA470M10L	C41	

Pre Amp Unit (CWK-268) (UKE-3100)

MISCELLANEOUS

Mark	Part No.	Symbol & Description
★★	TA7325P	IC1
★★	BA338	IC2
★★	2SC1815 or 2SC945 or 2SC536NP	Q1, Q2
★	1S1555 or 1S2076 or 1S2473 or DS442 or US1040	D1
★	WZ-090	D2

RESISTORS

Mark	Part No.	Symbol & Description
	RD1/4VM □□□ J	R1–R5, R9–R12, R14, R21
	RD1/6PS □□□ J	R6–R8, R13, R15–R17, R19, R20
	VACANT	R18

CAPACITORS

Mark	Part No.	Symbol & Description
	CEANL4R7M25L	C1, C2
	CEA470M10L	C3, C4, C19
	CQMA103J50L	C5, C6
	CEA010M50L	C7, C12, C13, C16
	CEA101M16L	C8
	CQMA223K50L	C9, C10
	CQMA392K50L	C11
	CEA2R2M50L	C14
	CEA4R7M25L	C15
	CKDYB681K50L	C17, C18

Bass/Treble Unit (CWG-101) (UKE-7100)

Mark	Part No.	Symbol & Description
★★	NJM4558D-D or μPC4558C	IC1
★★	CCS-263	VR1/S1 Volume/Switch Volume, 25kΩ(B) x 2,50kΩ(W), 20kΩ(B) (Bass, Treble, Volume, Balance/Tuner)
	RD1/4VM □□□ J	R1, R3, R15
	RD1/4PM □□□ J	R2, R4, R8, R10
	RD1/6PS □□□ J	R5–R7, R9, R11–R14
	CQMA682K50L	C1, C2
	CQMA473K50L	C3, C4
	CCDSL330K50L	C5, C6
	CEA100M16LL	C7, C8
	CEA220M10L	C9
	CEA470M10L	C10

Tone Unit (UKE-3100)

Mark	Part No.	Symbol & Description
★★	CCS-277	VR1/S1 Volume/Switch Volume, 20kΩ(B) x 2,50kΩ(W) (Tone, Volume, Balance/Tuner)
	RD1/6PS □□□ J	R1, R2
	CSYA0R1M25SAN	C1, C2

Switch Unit (A)

Mark	Part No.	Symbol & Description
★★	CSD-021	S1 Switch (Band/Tuning)

Switch P.C. Board

Mark	Part No.	Symbol & Description	
★★	CSF-014	S1	Switch (Tuner/Tape)
★★	CSN-071	S2	Switch (Key Off)

Head Unit (UKE-7100)

Mark	Part No.	Symbol & Description	
★★	CPB-066	HD1	Head
★★	CSH-070	S1	Switch (Head Selector)

Miscellaneous Parts List

Mark	Part No.	Symbol & Description	
★	SM-1A-02	D1, D2	
	CCH-088	C1	470μF/16V
★★	CWS-108	S1	Switch (FF/REW) (UKE-7100)
★★	CSN-070	S1	Switch (FF/REW) (UKE-3100)

Mark	Part No.	Symbol & Description	
★★	CPB-064 or CPB-065	HD1	Head (UKE-3100)
★	CXP-035	SO1	Solenoid (UKE-7100)
★	CXP-034	SO2	Solenoid (UKE-7100)
★	CXP-033	SO1	Solenoid (UKE-3100)
★	CXP-032	SO2	Solenoid (UKE-3100)
★★	CXM-104	M	Motor (UKE-7100)
★★	CXM-154	M	Motor (UKE-3100)
	CXC-490	Display	

13. PACKING METHOD

- Parts List

Mark	No.	Part No.	Description
	1.	CRB-453	Owner's Manual (UKE-7100/US) (English)
		CRD-254	Owner's Manual (UKE-7100/CA) (English, French)
		CRB-454	Owner's Manual (UKE-3100/US) (English)
		CRD-255	Owner's Manual (UKE-3100/CA) (English, French)
		CRG-011	FM Guide (UKE-7100/US)
			Card (UKE-7100/US)
			Card (UKE-7100/CA)
			Card (UKE-3100/US)
			Card (UKE-3100/CA)
	2.		Tag
	3.	CEA-599	Panel (UKE-7100)
		CEA-600	Panel (UKE-3100)
★	4.	CEA-601	Knob Kit (UKE-7100)
★		CEA-602	Knob Kit (UKE-3100)
★	4-1.	CAA-386	Knob (Tuning) (UKE-7100)
★		CAA-385	Knob (Tuning) (UKE-3100)
★	4-2.	CAA-375	Knob (Vol, Bal) (UKE-7100)
★		CAA-379	Knob (Vol, Bal) (UKE-3100)
★	4-3.	CAA-376	Knob (Treble) (UKE-7100)
★		CAA-387	Knob (Tone, Band) (UKE-3100)
★	4-4.	CAA-377	Knob (Bass) (UKE-7100)
★	4-5.	CAA-378	Knob (Band) (UKE-7100)
	5.	CHC-460	Styrofoam (1set pair)
	6.	CNS-708 or CNS-739	Cover
	7.	CEA-550	Accessory Kit
	7-1.	CNC-975	Strap
	7-2.	CDE-437	Cord
	7-3.	CNV-769	Washer
	7-4.	CEA-215	Screw Kit
	7-4-1.	CBA-028	Screw for Strap
	7-4-2.	B70-055-A	WN4φ x 4.5t

Mark	No.	Part No.	Description
	7-4-3.	WS40FMC	Washer
	7-4-4.	PMB50P160FMC	Screw
	7-4-5.	B70-056-A	WN5φ x 5.3t
	7-4-6.	CND-646	FW10φ x 1t
	7-4-7.	CBN-028	N10φ x 2t
	7-4-8.	CNS-722	Cover
	8.	CHC-492	Contain Box (UKE-7100/US)
		CHC-494	Contain Box (UKE-3100/US)
	9.	CHC-491	Carton (UKE-7100)
		CHC-493	Carton (UKE-3100)
	10.		Seal (These seals are applied only to the model UKE-7100/CA.) Seal (These seals are applied only to the model UKE-3100/CA.)

• Packing Method

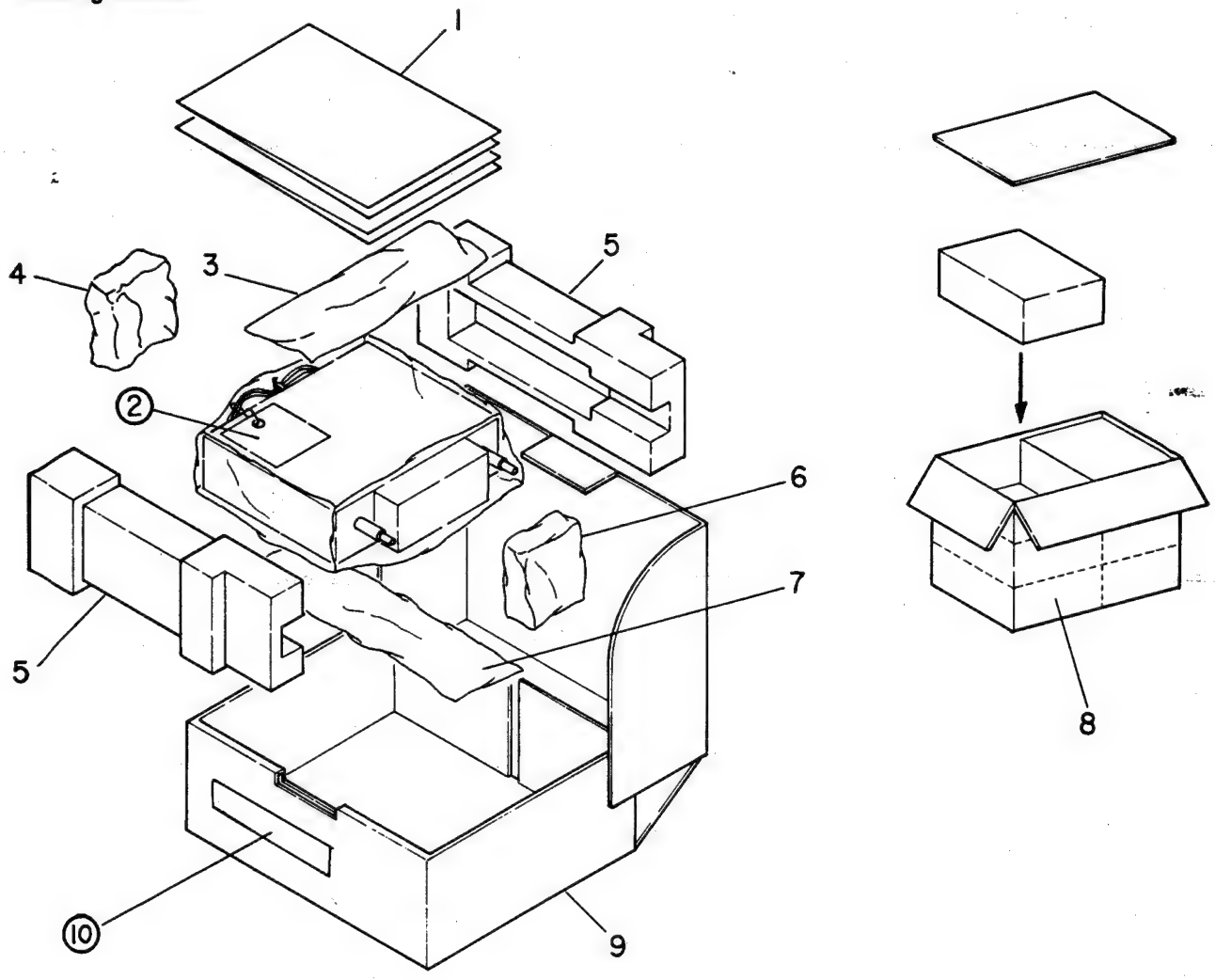


Fig. 35

14. TROUBLESHOOTING

This section explains how to repair malfunctions in the scan, clock, display and up/down operations of the model UKE-7100. The parts and circuits that should be studied for each of the operations—scan, clock, display and up/down—are indicated in the explanation.

The Δ mark in the troubleshooting charts indicates that a check shold be performed followed bt a YES/NO or OK/NG judgement and then by possible remedial action. Any part marked "NG" is quite possibly defective and so a through check is required.

The control section of the model UKE-7100 is configured around the IC1 PD7003A (PD7003B). Therefore, before checking out the circuitry, inspect the PD7003A (PD7003B) for the following points. If the inspection reveals that there is nothing wrong with the IC, it can be assumed that the IC is operational.

Model	UKE-7100
IC	PD7003A (PD7003B)
Supply voltage	Pin 14: Approx. 5.3V
Crystal oscillator	Pins 16, 17
Frequency	4.5 MHz

A GO/NO GO judgement on the functioning of the PD7003A (PD7003B) is made through the observation of the output waveforms at the pins.

Example: No output → Often a defect in the IC itself.
Something wrong with waveforms → Often a problem in the IC's peripheral circuits (or possible defect in IC itself)

The "L" output is equivalent to 0V and the "H" output to 5V or 5.2V. There is no interim value. An oscilloscope should be used to observe the waveforms, and the appropriate range is 0.2V/cm and 0.2 to 1 ms/cm when a **10 : 1** probe is employed.

Tuning, Voltage System

(UKE-7100)

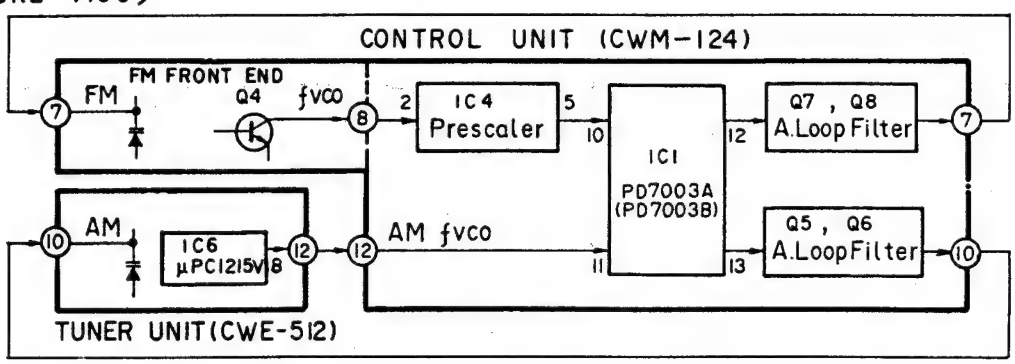


Fig. 36

Scan, Stop, Signal System

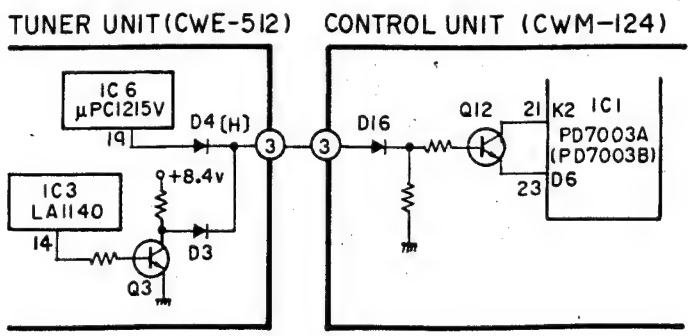


Fig. 37

Power System

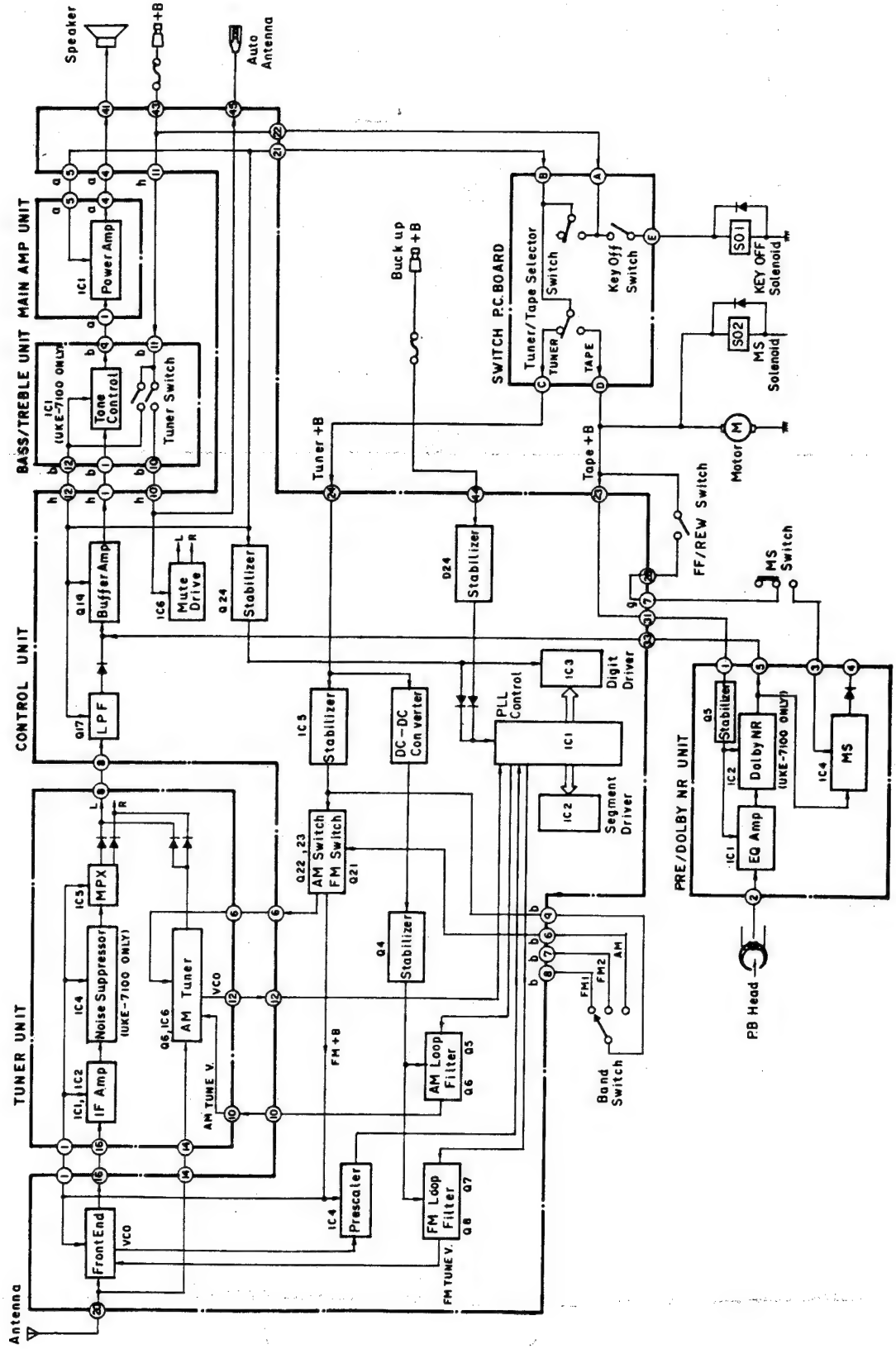


Fig. 38

Display System

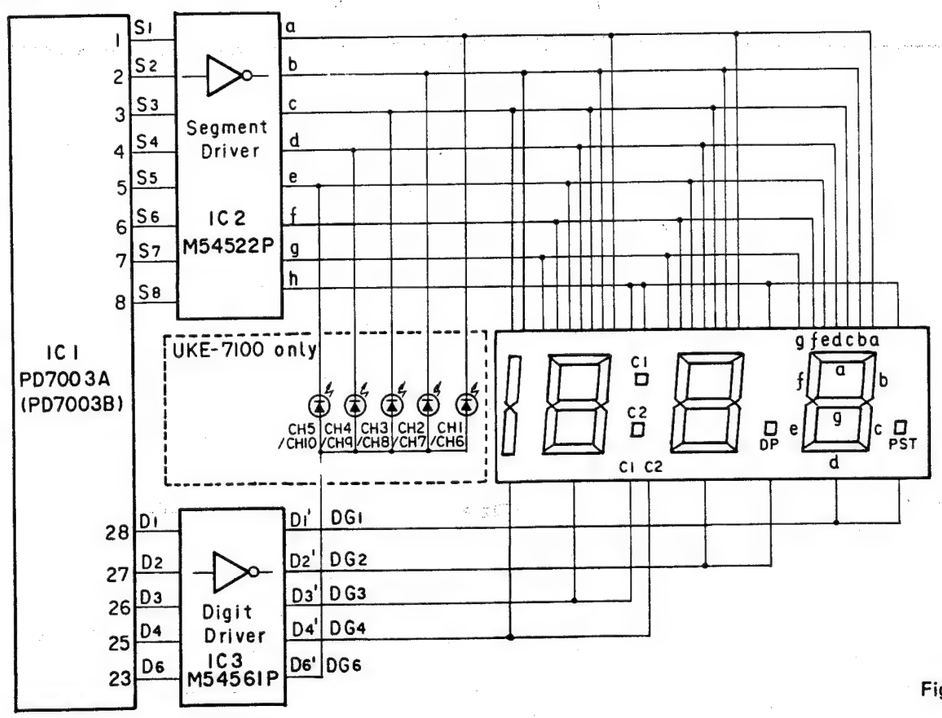
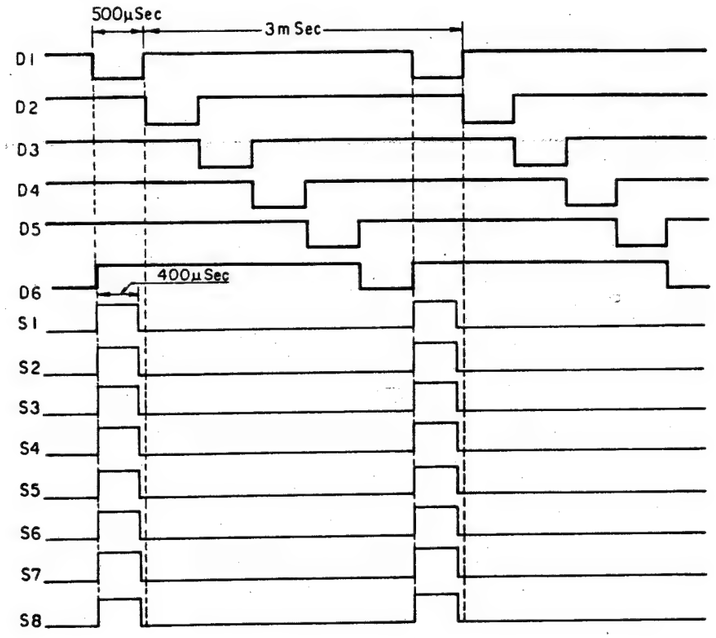


Fig. 39



Example: When 8 . of DG1 is ON.

Fig. 40

LED drive matrix

Segment drive output active "H" / Digit drive output active "L"	S1	S2	S3	S4	S5	S6	S7	S8
D1	DG1 a	DG1 b	DG1 c	DG1 d	DG1 e	DG1 f	DG1 g	DG1 PST
D2	DG2 a	DG2 b	DG2 c	DG2 d	DG2 e	DG2 f	DG2 g	DG2 DP
D3	DG3 a	DG3 b	DG3 c	DG3 d	DG3 e	DG3 f	DG3 g	DG3 C1
D4	DG4 a	DG4 b	DG4 c	DG4 d	DG4 e	DG4 f	DG4 g	DG4 C2
D5	DG5 AM(R)		DG5 FM1	DG5 FM2		DG5 PM	DG5 AM(C)	
D6	DG6 CH1/CH6	DG6 CH2/CH7	DG6 CH3/CH8	DG6 CH4/CH9	DG6 CH5/CH10			

Note: D5 is not used in UKE-7100 and 3100
D6 is not used in UKE-3100.

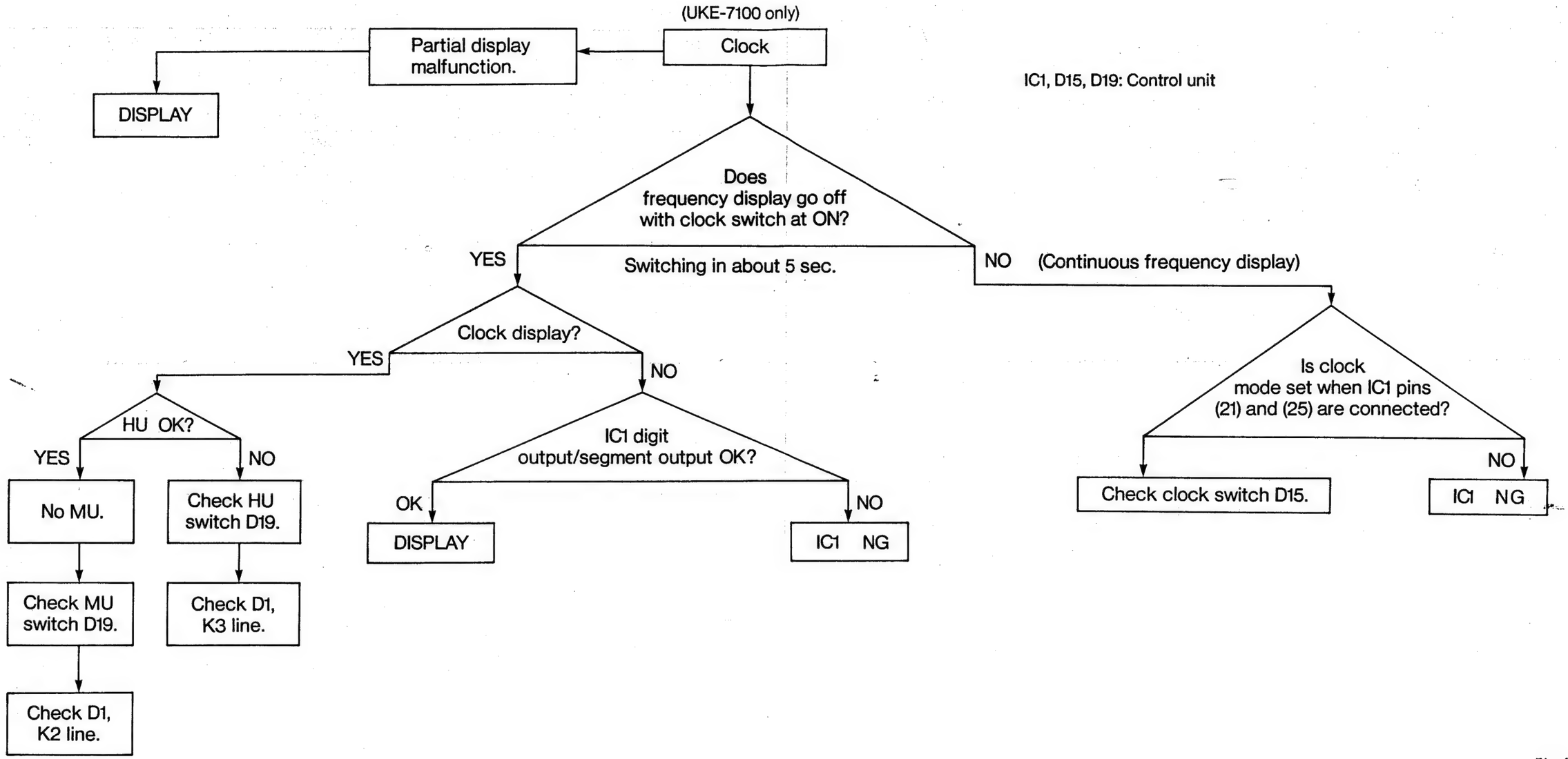

(UKE-7100 only)
Clock
Partial display malfunction.
DISPLAY
IC1, D15, D19: Control unit
Does frequency display go off with clock switch at ON?
YES
Switching in about 5 sec.
NO
(Continuous frequency display)
Clock display?
YES
NO
HU OK?
YES
NO
No MU.
Check HU switch D19.
Check MU switch D19.
Check D1, K3 line.
Check D1, K2 line.
IC1 digit output/segment output OK?
OK
NO
DISPLAY
IC1 NG
Is clock mode set when IC1 pins (21) and (25) are connected?
NO
Check clock switch D15.
IC1 NG

Fig. 41

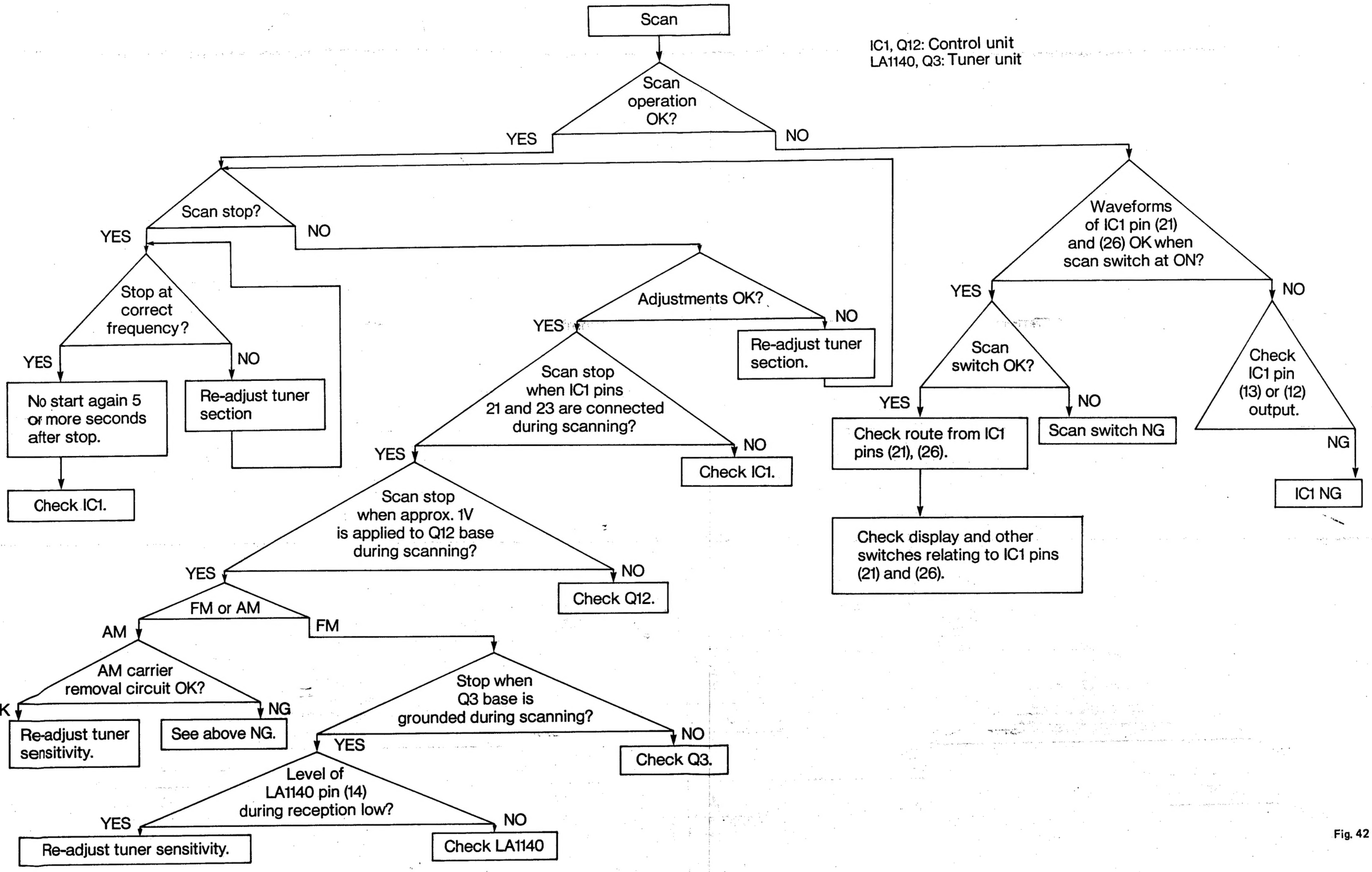

Scan
IC1, Q12: Control unit
LA1140, Q3: Tuner unit
Scan operation OK?
YES
NO
Scan stop?
YES
NO
Stop at correct frequency?
YES
NO
No start again 5 or more seconds after stop.
Re-adjust tuner section
Check IC1.
Adjustments OK?
YES
NO
Re-adjust tuner section.
Scan stop when IC1 pins 21 and 23 are connected during scanning?
YES
NO
Check IC1.
Scan stop when approx. 1V is applied to Q12 base during scanning?
YES
NO
Check Q12.
FM or AM
AM
FM
AM carrier removal circuit OK?
OK
NG
Re-adjust tuner sensitivity.
See above NG.
Stop when Q3 base is grounded during scanning?
YES
NO
Check Q3.
Level of LA1140 pin (14) during reception low?
YES
NO
Re-adjust tuner sensitivity.
Check LA1140
Waveforms of IC1 pin (21) and (26) OK when scan switch at ON?
YES
NO
Scan switch OK?
YES
NO
Scan switch NG
Check route from IC1 pins (21), (26).
Check display and other switches relating to IC1 pins (21) and (26).
Check IC1 pin (13) or (12) output.
NG
IC1 NG

Fig. 42

IC1～IC3, Q24, Q25: Control unit

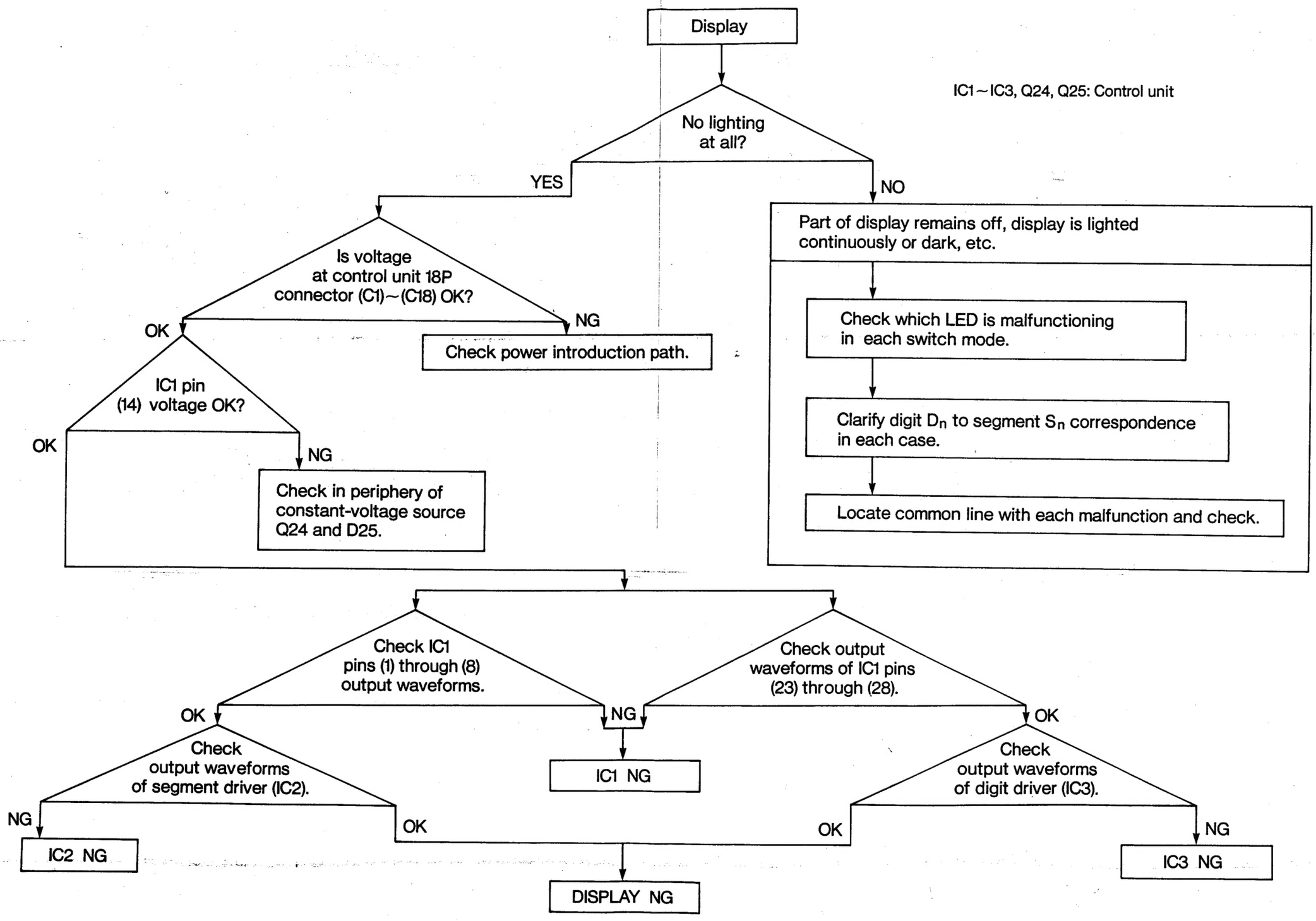


Fig. 43

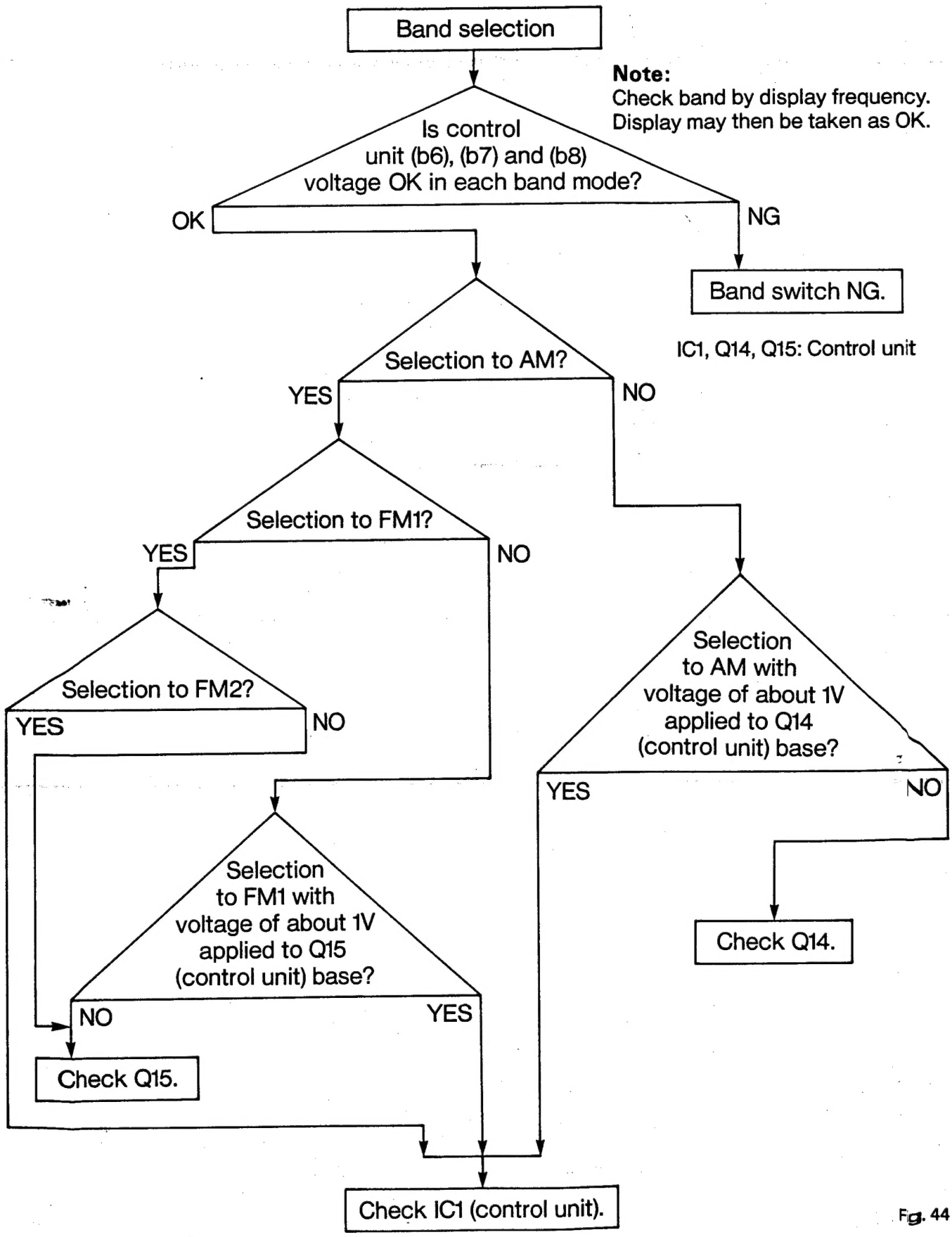

Band selection
Note:
Check band by display frequency.
Display may then be taken as OK.
Is control unit (b6), (b7) and (b8) voltage OK in each band mode?
OK
NG
Band switch NG.
IC1, Q14, Q15: Control unit
Selection to AM?
YES
NO
Selection to FM1?
YES
NO
Selection to FM2?
YES
NO
Selection to AM with voltage of about 1V applied to Q14 (control unit) base?
YES
NO
Check Q14.
Selection to FM1 with voltage of about 1V applied to Q15 (control unit) base?
NO
YES
Check Q15.
Check IC1 (control unit).

Fig. 44

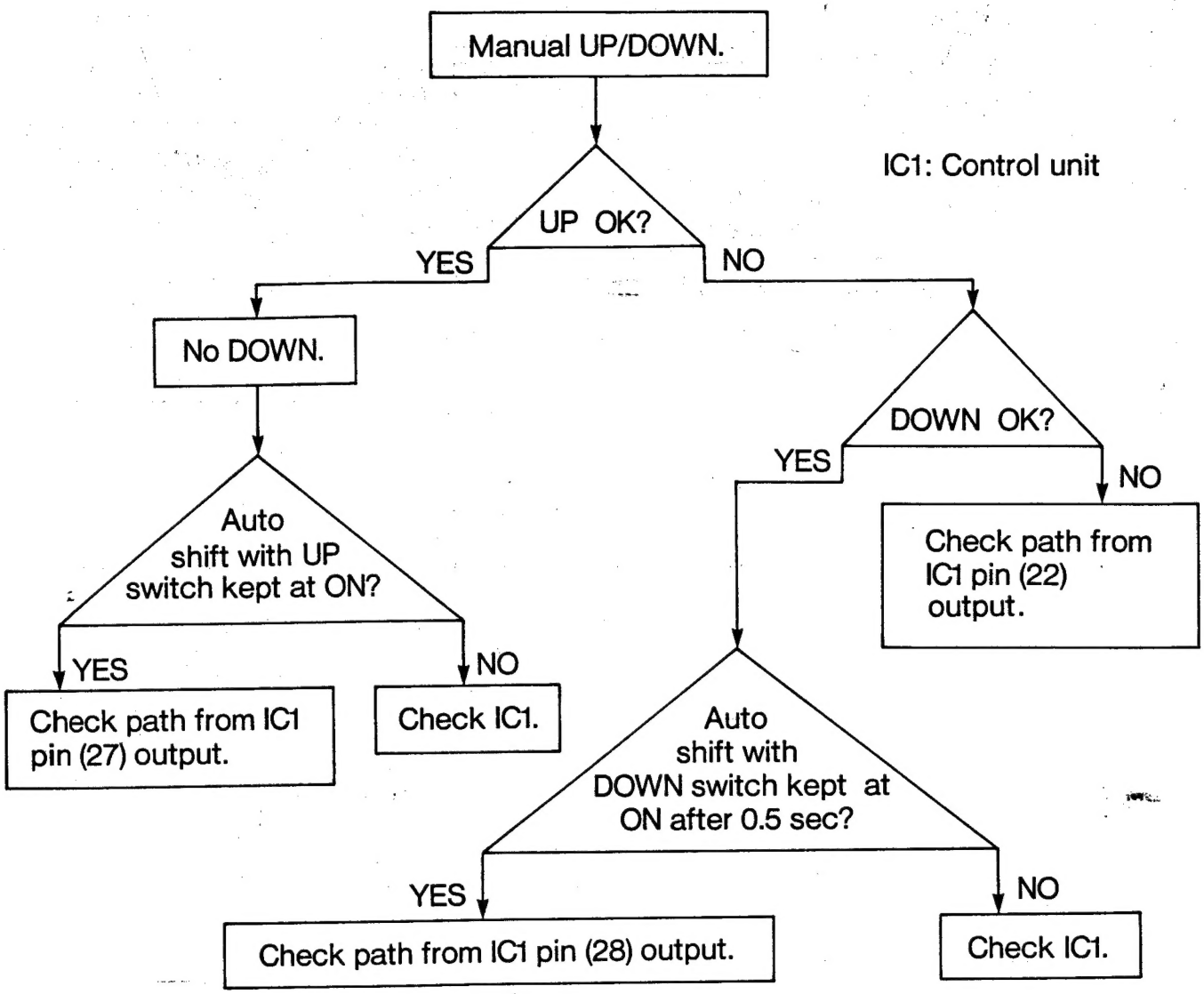

Manual UP/DOWN.
IC1: Control unit
UP OK?
YES
NO
No DOWN.
DOWN OK?
YES
NO
Auto shift with UP switch kept at ON?
Check path from IC1 pin (22) output.
YES
NO
Check path from IC1 pin (27) output.
Check IC1.
Auto shift with DOWN switch kept at ON after 0.5 sec?
YES
NO
Check path from IC1 pin (28) output.
Check IC1.

Fig. 45